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POTAWATOMI III: THE VERB COMPLEX[1]

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7.0. Structure of the Complex
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7.0. Structure of the Complex. By 'verb complex' is meant a verb or a close-knit phrase (**3.24, 3.26, 3.3**) with a verb at its center. Only verbs in independent or conjunct orders participate in such close-knit phrases. A verb complex may have several preverbs or other elements before the verb proper; we classify such elements according to the positions they hold relative to each other, and are led to recognize the following positional classes:

(1) Personal prefixes and √*ablaut*/ (**3.3**), joined to the next element by internal morphophonemics. For occurrence of the personal prefixes, see **5**; for √*ablaut*/, **7.11.**

(2) First-position preverbs (**7.12**).

(3) Second-position preverbs (**7.13**).

(4) Third-position preverbs (**7.14**).

(5) Inserted words or phrases which are not part of the verb complex (**7.15**).

(6) The negative preverb pwa (**7.16**).

(7) The chameleon preverb √R/ (**7.17**).

Each of these save (1) is joined to the next by external morphophonemics. After (7) comes the verb proper: stem and paradigmatic suffixes. There is one post-verbal position, with external juncture intervening: it is occupied, if at all, by the interrogative particle nu: thus kki wsamkwam nu *Did you oversleep?*

7.1. Elements before the Stem.

7.11. Ablaut. Participial forms have √*ablaut*/ in position one.[2] The √*ablaut*/ morpheme consists of a change in the phonemic or morphophonemic structure of the first vowel of whatever element it is associated with, according to the following schedule: √a and √e show no change. √i and √o are replaced by √a. U is replaced by √e. If the U is initial, the replacement is by √ʔe. Initial O is replaced by √we, as though it were basically √wU instead of O (cf. **2.3,** third paragraph).

Examples: √*ablaut*/ + wapUmawat = wapmawat *the one they see*; √*ablaut*/ + √nemot = nemot *the one who breathes*; √*ablaut*/ + √ki *past time* ∼ nUpot = ka mpot *the one who died*; √*ablaut*/ + nok·anUk = nak·anuk *the one I hired*; √*ablaut*/ + nUpot = nepot *the dead one*; √*ablaut*/ + UšU *thus* ∼ čUket = ʔeš čuket *how he does it*; √*ablaut*/ + wUčU + pikUtUpeš·Uk = weč piktupeš·uk *why it breaks.*

The combination of √*ablaut*/ with some preverbs is irregular; such cases are itemized below.

7.12. First-position Preverbs. ʔe, with conjunct mode only, *narrative*: ʔe ki mpot *he died.* Translation usually cannot show the force of this preverb; it is the mark of a certain style, namely that of story-telling and the like, in contrast to statements made about what has happened, in reality, to the speaker.

ʔa with conjunct mode or independent

[1] For **1–3** see IJAL 14.1–10; for **4–6**, IJAL 14. 63–73 (both 1948).

[2] But see fn. 10 and text referred to for an exception.

order; personal prefixes before ?a appear in their shorter forms. In the independent (indicative and negative) it appears primarily in forms which include the speaker in the subject, and expresses *intention*; the meaning in the conjunct is similar. In the indicative the preverb ki *past time* may follow, but no other; in the conjunct the preverb UčU *where, while, how* follows. nta šya ?otanuk *I'm going into town*; nta ki šya ?otanuk *I was going into town*; ?a ču ns·awat *in order for them to kill him.*

kU only with indicative or negative, with personal prefixes in shorter forms, and only with speaker included in subject. It indicates assent to a request, and perhaps other things: nku wapma *OK, I'll see him as you ask.*

kUkO? with independent order only, *quickly*; no other preverbs: nkuko? ns·a *I kill him quickly.*[3]

nUto? with independent order only, *try*; no other preverbs: nnuto? ns·a *I try to kill him.*

7.13. Second-position Preverbs. There are two of these, ki *past time* and wi *future time* (future relative to a temporal point of reference, not always the present). Thus ki pye *he came* (indicative); ?e ki pyat *he came, he had come* (conjunct with narrative preverb); ?e ki ču nim?utiywat *while they danced together* (same); ?e ki wu čiptuput *he went to sit down*; ka mpot *the one who died* (participial); and wi pye *he's going to come* (indicative); ?e wi pyat *he was going to come, that he would come* (conjunct with narrative preverb); ?e wi šu ns·awat *they were going to kill him thus* (same).

7.14. Third-position Preverbs. pUpič· *when, while, inasmuch as*, in conjunct mode with narrative preverb: ?e ppič tpuwewat *inasmuch as they were holding council.*[4]

UčU *where, while, how* (*means or manner*). Only in conjunct forms, and primarily in participials: ka ču yut *where he was*; ?eču mik·wentuk *where he remembered*; ?e ki ču nim?utiywat *while they danced together*; ?a ču ns·awat *in order for them to kill him, how they might then kill him*; ?e ču wtankwenut *where they had a town.* UčU plus √*ablaut*/ appears as ?eču (final weak vowel retained); this and the sequence ?e ču of narrative preverb followed by preverb UčU are easy to confuse, and may have been confused in some of the examples just given.

UwU *going to, on the way to, moving towards the place where such-and-such will be done.* Independent and conjunct: kku wu nim?-utiymun *let's be on our way to dance together*; ?e ki wu čiptuput *he went to sit down*; ?e ki wu pmaks·ot *he went to lie down.*

kikiš *after, already*; in participial or in conjunct mode with narrative preverb: ?e kikiš tepmat *he had already had enough*; kakiš pšinat *after he had skinned him.*

UnU *when, then, until the time that*; with narrative preverb and no second-position preverbs: ?e nu kač·iyut *then he was small*; ?e nu pyat *then he came.*

wUčU (with √*ablaut*/, weč) *why*; *towards*; in participial only: weč k·ew piktupeš·uk *why he* (a clay pipe, *nai*) *breaks easily*; weč k·ew nkapawek *why he melts easily*; weč ks·unyak *towards where it is cold*; ka wču pyat *why he came.*

wep *inceptive*; in indicative and negative, without preverbs of first and second positions, and in narrative: nwep ns·a *I start to kill him*; ?e ki wep tpomawat *they began to hold council about him*; ?e ki wep pitkewat *they started to come in*; ?e wep nkapawet *he started to melt.*

UšU *thus, so, how*; indicative, negative, conjunct: ?e šu nkotwut *he lived alone thus*; ki šu čikkateno *he lay thus with one leg up in*

[3] Obviously the positional classification of some of the preverbs is entirely arbitrary. There is doubtless some technique, unknown to me in 1938–9, whereby such arbitrary assignment can be avoided.

[4] With this preverb compare the root pUpiT·, with much the same meaning; e.g., in ?e ppit·ačmowat *they were talking at that time.*

the air; ka šu weput ʔe ki šuteʔat *how he had done it, he had that way in mind = he was thinking of how he had done it.*

7.15. Inserted Material. Between the elements just listed and those of the following sections, there is a relatively much looser break in the sequence which constitutes a verb complex. In dictating texts, informants sometimes paused at this point, but never at the other intra-element positions here described. Words or phrases not part of the verb complex may also fall here, as in the following examples: weč- k·ew -piktupeš·uk *why he breaks easily*, a participial form with wk·ew *easily* inserted; kakiš- ʔi -šuteʔat *after he though this thus*, with ʔi *this* inserted; ʔe-ki- wšku -čisp·unawat *they pinched him the first time*, with wšku *first time* inserted; weč- nkom mekwa š·ak·iyuk -yuwak *why there are still today crawdads*, with nkom *today*, mekwa *still*, and š·ak·iyuk *crawdads* inserted.

Inserted elements do not appear in independent order forms, and in the conjunct order may perhaps appear only in participials.

7.16. The Negative Preverb pwa. In the conjunct order, verbs are negated by a preverb pwa in this position: ʔe ki pwa pyat *he didn't come.*

7.17. The Chameleon Preverb √R/. The meaning of this preverb is *iteration, intensitivity, continuity, habitualness*, or (at least in one case) *inception.* The phonemic shape of the chameleon preverb depends entirely on the morphophonemic shape of the beginning of the verb stem which follows:

Stem begins	Shape of √R/
Ca, Ce	Ca, Ce
Ci, Co	Ca
CVCv	CVCU

In the last line, 'V' indicates a weak vowel (O or U), 'v' any vowel at all, C any consonant or cluster.

Examples: nU *I* + R ∼ wapUtaʔa = nwa waptaʔa *I show it to him regularly*; nU + R ∼ wepUna = nwe wepna *I leave him repeatedly*; nU + R ∼ čipUtUp = nča čiptup *I sit down* (inceptive; cf. nčiptup *I am sitting, I sit*); nU + R ∼ koki = nka koki *I dive in often*; nUtU + R ∼ mUmačUkona = ntummu mmačkona *I hold him tight*; nUtU + R ∼ pUsUtake = ntupsu psutake *I keep my mind on it constantly*; nUtU + R ∼ čUk·osiy = ntuč·k·u čk·osiy *I am very short.*

With nipUw *ai be standing*, nnipuw *I am standing*, one gets nna nipuw *I stand up*, in which √R/ can again occur to give nna na nipuw *I stand up repeatedly.*

When √R/ has the form CVCv, the personal prefixes occur only in shape nUt, kUt, wUt, as in the examples above.

7.2. Suffixation for Indicative and Negative.

7.21. Transitive Animate Verbs. We classify the indicative and negative forms of *ta* verbs as follows: DIRECT forms have subject including *1* or *2* (that is, person-number category *1, 2, 12, 15*, or *25*) but object excluding *1* or *2*, or *3* or *35* subject and *3′* object.[5] INVERSE forms reverse this, with *1* or *2* or both in object but not in subject, or *3* or *35* object and *3′* subject. The remaining forms are I-THEE, with *1* included in subject, *2* in object, or THOU-ME. The MAJOR REFERENCE of a direct form is its subject, of an inverse form its object.

Personal prefixes occur throughout the indicative and negative of *ta* verbs, by **5.**

7.211. Direct and Inverse Forms. The suffixal morphemes for direct and inverse forms are as follows, working outwards from the stem: (1) for direct, √a; for inverse, UkO. (2) for negative, √s·i; the indicative is marked by the absence of this. (3) For a first person plural major reference, mUn in direct forms, √nan in inverse, but mUna in

[5] The classification by direct, inverse, and so on, follows Bloomfield's treatment of Fox, IJAL 4.197 (1927).

either before the element √pun (see (4)); for a plural major reference which excludes first person, √wa, replaced by mUwa before √pun in direct forms only. (4) For preterit, √pun, replaced by √punin before √k or √n. (5) For an obviative minor reference, √n; for *35*, √k; otherwise zero; but √n and √k do not occur in direct forms containing mUn or mUna.

In inverse forms there are two special morphophonemic features: final mUw with ending UkO is replaced by the portmanteau makO;[6] final postconsonantal √w with ending UkO is replaced by portmanteau OkO.

[6] A 'portmanteau'—that is, an isolable element which has more or less the earmarks of a single morpheme, and yet occurs where one expects a sequence of two morphemes, to the exclusion of that sequence or in free alternation with it. See my Problems of Morphemic Analysis, Lg. 24 No. 4 (1947).

Tabularly, the direct forms are:

1–3	*1–3′*	*1–35*
2–3	*2–3′*	*2–35*
	3–3′	
12–3		
15–3		
25–3	*25–3′*	*25–35*
	35–3′	

and the inverse forms are:

3–1		*35–1*
3–2		*35–2*
	3′–3	
3–12		*35–12*
3–15		*35–15*
3–25		*35–25*
	3′–35.	

With the *ta* stem wapUm *see*, the indicative non-preterit forms are as follows (third person prefix √w does not appear phonemically because of the initial /w/ of the stem):

Negative non-preterit:

DIRECT			DIRECT		
nwapma	nwapman	nwapmak	nwapmas'i	nwapmas'in	nwapmas'ik
kwapma	kwapman	kwapmak	kwapmas'i	kwapmas'in	kwapmas'ik
	wapman			wapmas'in	
kwapmamun			kwapmas'imun		
nwapmamun			nwapmas'imun		
kwapmawa	kwapmawan	kwapmawak	kwapmas'iwa	kwapmas'iwan	kwapmas'iwak
	wapmawan			wapmas'iwan	
INVERSE			INVERSE		
nwapmuk		nwapmukok	nwapmuks'i		nwapmuks'ik
kwapmuk		kwapmukok	kwapmuks'i		kwapmuks'ik
	wapmukon			wapmuks'in	
kwapmuknan		kwapmuknanuk	kwapmuks'inan		kwapnuks'inanuk
nwapmuknan		nwapmuknanuk	nwapmuks'inan		nwapmuks'inanuk
kwapmukwa		kwapmukwak	kwapmuks'iwa		kwapmuks'iwak
	wapmukwan			wapmuks'iwan	

Preterit:

DIRECT		
nwapmapun	nwapmapuninun	nwapmapuninuk
kwapmapun	kwapmapuninun	kwapmapuninuk
	wapmapuninun	
kwapmamnapun		
nwapmamnapun		
kwapmamwapun	kwapmamwapuninun	kwapmamwapuninuk
	wapmamwapuninun	

INVERSE

nwapmukpun		nwapmukpuninuk
kwapmukpun		kwapmukpuninuk
	wapmukpuninun	
kwapmukmunapun		kwapmukmunapuninuk
nwapmukmunapun		nwapmukmunapuninuk
kwapmukwapun		kwapmukwapuninuk
	wapmukwapuninun	

Negative preterit:

DIRECT

nwapmas'ipun	nwapmas'ipuninun	nwapmas'ipuninuk
kwapmas'ipun	kwapmas'ipuninun	kwapmas'ipuninuk
	wapmas'ipuninun	
kwapmas'imnapun		
nwapmas'imnapun		
kwapmas'imwapun	kwapmas'imwapuninun	kẃapmas'imwapuninuk
	wapmas'imwapuninun	

INVERSE

nwapmuks'ipun		nwapmuks'ipuninuk
kwapmuks'ipun		kwapmuks'ipuninuk
	wapmuks'ipuninun	
kwapmuks'imnapun		kwapmuks'imnapuninuk
nwapmuks'imnapun		nwapmuks'imnapuninuk
kwapmuks'iwapun		kwapmuks'iwapuninuk
	wapmuks'iwapuninun	

The elements mUn, √nan, mUna *plural reference including speaker*, and √wa, mUwa *plural reference excluding speaker*, are doubtless to be regarded as the same morpheme, respectively, as the √nan and √wa with similar meanings found in possessed noun themes.[7]

The irregularities in inverse forms are illustrated by: nis·UwepUnUmUw *throw down to or for*: nnis·wepnumwa *I throw it down to him*, but nnis·wepnumak *he throws it down to me*; kiškO?w *cut*: nkišk?wa *I cut him*, but nkišk?ok *he cuts me*.

When there is no separate form for a *3′* or *35* reference, that for a *3* reference is used. Thus *12–3* and *15–3* are used indifferently for a *3*, *3′*, or *35* object.

7.212. I-thee and Thou-me Forms. The endings, from the stem outwards, are as follows: (1) indicative, zero; negative, Us·Uno in I-thee forms, √s·i in thou-me forms. (2) In I-thee forms, Un; in thou-me forms, nothing. (3) For *1–2* and *2–1*, zero (changing preceding N T T· S· to š, č, č· and š·), but √na before √pun; for *1–25* and *25–1*, Um, replaced before √pun by mUwa; for any reference to *15*, mUn, replaced by mUnUwa before √pun in I-thee forms, by mUna before √pun in thou-me forms, and by yUmUn when neither preceded by √s·i nor followed by √pun. (4) For preterit, √pun; for non-preterit, nothing.

This statement is so complicated that we

[7] Further elements which are probably members of the same two morphemes occur in the independent order forms of verbs of other types: **7.22**, **7.23**.

tabulate the ending-complexes alone and with the stem wapUm *see*:

INDICATIVE NON-PRETERIT

1–2	Un	kwapmun
1–25	UnUm	kwapmunum
15–2(5)	UnUmUn	kwapmunmun
2–1	zero	kwapum
25–1	Um	kwapmum
2(5)–15	yUmUn	kwapmuymun

NEGATIVE NON-PRETERIT

1–2	Us·Unon	kwapmus·non
1–25	Us·UnonUm	kwapmus·nonum
15–2(5)	Us·UnonUmUn	kwapmus·nonmun
2–1	s·i	kwapmus·i
25–1	s·im	kwapmus·im
2(5)–15	s·imUn	kwapmus·imun

INDICATIVE PRETERIT

1–2	UnUnapun	kwapmunnapun
1–25	UnUnUmUwapun	kwapmunnumwapun
15–2(5)	UnUmUnUwapun	kwapmunmunwapun
2–1	napun	kwapmunapun
25–1	mUwapun	kwapmumwapun
2(5)–15	mUnapun	kwapmumnapun

NEGATIVE PRETERIT

1–2	Us·UnonUnapun	kwapmus·nonnapun
1–25	Us·UnonUnUmUwapun	kwapmus·nonnumwapun
15–2(5)	Us·UnonUmUnUwapun	kwapmus·nonmunwapun
2–1	s·inapun	kwapmus·inapun
25–1	s·imUwapun	kwapmus·imwapun
2(5)–15	s·imUnapun	kwapmus·imnapun

As with the final stem morphophoneme and the inverse element UkO, wU may contract to O between a stem and these endings.

The *2(5)–15* form yUmUn may optionally contract with a preceding U which is retained to give /iymun/: thus an alternative to kwapmuymun *you see us* is kwapmiymun.

7.22. Animate Intransitive Verbs. The following classification of *ai* stems is useful for describing suffixation:

[1] Stems ending with a strong vowel, O, or a consonant: kas·UkUmi *start running*, čakUne *be bereaved*; kUk·ya *be old*; pUmUpUt·o *run along*; čipUtUp *sit*; kask·UnasO *whisper*. This class includes those *ai* stems which end in $^{a}/_{e}$, e.g. nis·$^{a}/_{e}$ *fall down*: such stems have /e/ for all third person (and obviative) indicative and negative forms, /a/ everywhere else.

[2] Stems in the finals tUm and t·Um: nenUtUm *think*.

[3] Stems ending in š·Un: mUčUmoš·Un *be stuck*.

[4] Several irregular stems requiring special mention: pUs·etonO *have a hair-lip*; sakU?Um *go out*; OsamUkwam(O) *oversleep*.

Our statements cover type [1]; special features of the other types are itemized as necessary.

The order of suffixal elements is: (1) for negative, √s·i, for indicative nothing. (2) For *1* or *2* actor, zero, but √na when √pun follows; for *12* and *15*, mUn, replaced by mUna before √pun; for *25*, √m, replaced by mUwa before √pun; for *3*, *3'*, *35*, nothing. (3) For the preterit, √pun, replaced by √punin if further material follows in the

same word; for non-preterit, nothing. (4) for *3'*, √n; for *35*, √k; for *3*, ∗; otherwise zero.

The non-preterit form for *3* subject has optionally ∗ or √wak. Forms for *3*, *3'*, and *35*, aside from non-preterit *3*, insert √wi before the endings if the weak-vowel pattern is such that a weak vowel before the √wi will be lost; otherwise the form without √wi occurs. The *35* ending √k is accompanied by replacement of a preceding U or √u by /i/. Stems ending in U?O change that to /o?/ for non-preterit *1* and *2*.

Tabularly, the indicative endings are:

	NON-PRETERIT	PRETERIT
1, 2	—	napun
3	∗, wak	pun, wipun
3'	n, win	puninun, wipuninun
12, 15	mUn	mUnapun
25	m	mUwapun
35	k, wik	puninuk, wipuninuk

The negative endings are the above with √s·i prefixed; where there are alternants with and without √wi, that without √wi occurs after √s·i; thus preterit *3'* = √s·ipuninun.

With *ai* stem kas·UkUmi *start running*:

1	nkask·umi	nkask·uminapun
2	kkask·umi	kkask·uminapun
3	kask·umi(wak)	kask·umipun
3'	kask·umin	kask·umipuninun
12	kkask·umimun	kkask·umimnapun
15	nkask·umimun	nkask·umimnapun
25	kkask·umim	kkask·umimwapun
35	kask·umik	kask·umipuninuk

Illustrations of particular features or irregularities: kaskUnUsO *whisper*: kasknuso or kasknuswak *he* (*3*) *whispers*, kasknuswik *they* (*35*) *whisper*; kUšatUs *be glad*: kšatsik *they* (*35*) *are glad*; kwaskUsU?O *jump*: nkwaskso? *I jump*; nis·^{a}/$_{e}$ *fall down*: nnis·a *I fall down*, nis·e *he falls down*, nis·epuninuk *they have fallen down*, nis·es·ipuninuk *they have not fallen down*.

The irregularities of stems of class [2] are as follows: (1) tUm or t·Um merge with the negative element √s·i to give tUs·i or t·Us·i. (2) The forms for *3*, *3'*, and *35*, except for non-preterit *3*, have couplets as do stems of type [1]: when the U of tUm or t·Um is retained the suffix with √wi is used, otherwise a suffix with √o in this position is used. (3) tUm and t·Um are replaced by √ta and √t·a before √na, mUn, √m, and their alternants mUna and mUwa. (4) The form for non-preterit *3* is zero, not ∗.

Thus with stem UnenUtUm *think*:

1	ntunentum	ntunentanapun
2	ktunentum	ktunentanapun
3	nentum(wak)	nentumpun
3'	?	nentumpuninun(?)
12	ktunentamun	ktunentamnapun
15	ntunentamun	ntunentamnapun
25	ktunentam	ktunentamwapun
35	nentumwik	nentumpuninuk

The stem pUs·wetUm *make an echo* has ps·wetmok *they* (*35*) *make an echo*, ps·wetum *he* (*3*) *makes an echo*.

Stems of class [3] have the following special features: (1) Forms for *3*, *3'*, and *35* other than non-preterit *3* are like those of class [2], showing alternation between suffixes with √o and suffixes with √wi instead of between those with zero and √wi. (2) Preterit *1* and *2* have ending and final merged to š·Unapun. (3) Non-preterit *3* has zero, not ∗.

Thus with stem mUčUmoš·Un *be stuck*: mčumoš·un *he is stuck*, mčumoš·nok *they are stuck*, ntumčumoš·napun *I have been stuck;* with stem pUpUkUš·Un *fall*: ppukš·unwik *they fall.*

Class [4]: The stem pUs·etonO *have a hair-lip* is like other stems in O except that it takes zero as the suffix for non-preterit *3*: ps·eton *he has a hair-lip*. OsamUkwam(O) shares this peculiarity, but has irregularities in other orders than the independent, where pUs·etonO is regular. sakU?Um *go out* has *3* sak?um, *12* ksak?amun, *15* nsak?amun, *25* ksak?am, and corresponding stem-changes in preterit forms.

7.23. Transitive Inanimate Verbs. These fall into two classes for suffixation: [1] VOWEL STEMS, including all such as √pyeto

bring, myanUškakO *be sick from*, which end morphophonemically in a vowel, and also a few like √nat *fetch* which end morphophonemically in a consonant; and [2] CONSONANT STEMS, including the remainder: e.g. √wep·ot *hit*, wapUt *see*. There is no separate form (in indicative and negative) for *3′* subject; with certain subjects there is a separate form for *05* object, but the form for *0* object is always capable of standing instead of the special separate form for *05* object.

The negative element is √s·i, added directly after the stem; a stem plus √s·i then acts as a vowel stem for purposes of further suffixation. The remaining suffix morphemes are as follows: (1) √a after consonant stems, zero after vowel stems. (2) For singular subject, √n, replaced before √pun by √na; for plural subject including speaker, mUn, replaced by mUna before √pun; for plural subject excluding speaker, √nawa. (3) For preterit, √pun, replaced by √punin if anything else follows in the same word; for non-preterit, nothing. (4) For plural (*05*) object, √n; but this cannot stand in a form which contains mUn or mUna, so that forms with *12* and *15* subject have no special form for *05* object; for singular object, zero.

Examples: npyeton *I bring it* (*1–0*); nnatun *I fetch it*; ntumyanškakon *I am sick from it*; ntumyanškaknun *I am sick from them* (*1–05*); wep·otan *he hits it* (*3–0*); waptanawapuninun *they have been seeing them* (*35–05*); waptus·inawapuninun *they haven't been seeing them*; nwep·ots·in *I don't hit it*.

7.24. Inanimate Intransitive Verbs. *ii* stems either end in a vowel (including ª/₀), or, if they end in a consonant, end in one of the three finals √n, √t, or mUkUt; the latter three fuse with the endings.

In the indicative, there are separate forms for *0*, *0′*, and *05*; in negative preterit *0* and *0′* are kept separate from *05*, but in negative non-preterit *0*, *0′* and *05* are represented by a single form.

We describe suffixation after vowel stems first. The suffix morphemes are as follows, working outwards from the stem: (1) For the negative, s·Unon, replaced by s·Uno before √pun; for indicative, nothing. (2) For *0*, nothing; for *0′*, nUn; for *05*, nothing. (3) For preterit, √pun, alternating as usual with √punin. (4) For *05*, √ton, replaced after √punin by √n; for *0* and *0′*, nothing.

We give the complete endings and forms built on wawUyeya *be round*:

		NON-PRETERIT	
aff.	*0*	—	wawyeya *it is round*
	0′	nUn	wawyeyanun *the other is round*
	05	ton	wawyeyaton *they are found*
neg.	*0, 0′, 05*	s·Unon	wawyeyas·non *it isn't round*
		PRETERIT	
aff.	*0*	pun	wawyeyapun *it has been round*
	0′	nUnUpun	wawyeyannupun
	05	puninUn	wawyeyapuninun
neg.	*0, 0′*	s·Unopun	wawyeyas·nopun
	05	s·UnopuninUn	wawyeyas·nopuninun

When a final √n, √t, or mUkUt precedes, the fused forms are as follows:

	√n	√t	mUkUt
NON-PRETERIT			
AFFIRMATIVE			
0	n	t	mUkUt
0′	nUn	tUn(Un)	mUkUtUn
05	non	ton	mUkUton
NEGATIVE			
0, 0′, 05	s·Unon	s·Unon	mUkUs·Unon

	√n	√t	mUkUt
PRETERIT			
AFFIRMATIVE			
0	nopun	topun	mUkUtUpun
0′	nUnipun	tUnUnipun	mUkUtUnUnipun
05	nopuninUn	topuninUn	mUkUtUpuninUn
NEGATIVE			
0, 0′	s·Unopun	s·Unopun	mUkUs·Unopun
05	s·unopuninUn	s·UnopuninUn	mUkUs·UnopuninUn

Thus wapUn *be morning*: waps·unon *it isn't morning*; wUwUnUt *be good*: (?)wuns·unon *it isn't good*; wiškUyamUkUt *be hard*: wiškyamkus·non *it isn't hard*.

7.3. Suffixation for Imperative and Prohibitive. The suffixes for imperative and prohibitive of *ta* verbs are as follows:

	IMPERATIVE	PROHIBITIVE
2–3(5)	—	ak·Un
25–3(5)	Uk	ak·ek
2–1	š·Un	š·ik·Un
25–1	š·Uk	š·ik·ek
2(5)–15	š·UnUk	š·ik·ak

The ending for *2–3(5)* replaces a stem-final N T T· S· by š č č· š·. Despite the fusion, we can recognize the following smaller elements: (1) When *1* is involved in the object, there is a suffix-initial š·. (2) For the prohibitive, there is a suffix-medial k·. (3) For *25* subject or *15* object, there is a suffix-final k; (4) for *2* subject a suffix final n save in the *2–3(5)* form.

The imperative and prohibitive endings for *ai* and *ti* verbs are the same; such forms of *ti* verbs do not distinguish the number (*0* versus *05*) of the object:

	IMPERATIVE	PROHIBITIVE
2	n	k·Un
25	k	k·ek

ai stems in tUm or t·Um drop the final √m before these endings; other *ai* stems and all *ti* stems have regular morphophonemics.

Thus with wapUm *see, ta*: wapum *see him!* (*2–3(5)*), wapmuk *25–3(5)*, wapmuš·un *2–1*, wapmuš·uk *25–1*, wapmuš·nuk *2(5)–15*; wapmak·un *don't see him!* (*2–3(5)*), wapmak·ek *25–3(5)*, wapmuš·ik·un *2–1*, wapmuš·ik·ek *25–1*, wapmuš·ik·ak *2(5)–15*. With $py^{a}/_{e}$ *come, ai*: pyan *come here!* (*2*), pyak *25*; pyak·un *don't come here!* (*2*), pyak·ek *25*. And with √pyeto *bring, ti*: pyeton *go bring it!* (*2–0 or 2–05*), pyetok *25–0* or *25–05*; pyetok·un *don't go bring it!* (*2–0 or 2–05*), pyetok·ek *25–0* or *25–05*.[8]

7.4. Suffixation for Conjunct and Participial.

7.41. Transitive Animate Verbs. The non-preterit endings are listed in the table: subject-category along left margin, object-category along top. Of the two forms for *1–25*, UnUko is used after a stem in which the weak vowel before the last stem consonant drops, UnUnUko after a stem in which the final consonant is preceded by a strong vowel, or by a weak vowel which is retained. The form for *35–2* is perhaps correctly UkUk·wa instead of Uk·wa. The *3(5)–15* ending yUmUt may contract with a preceding retained U to /iymut/, like the *ta* indicative *2(5)–15* suffix yUmUn; this holds also for *2–1* yUn, alike when the preterital suffix follows.

The preterit suffix forms have √pun after the endings listed in the table for non-preterit, with these modifications: (1) non-preterit endings in a final √t drop that and add √p·ut: thus *2–3* Up·ụt, *3–1* √p·ut, *35–1* √wap·ut, etc.; (2) the two endings with final √n drop it: thus *2–1* yUpun, *1–2* Unapun.

Our examples are with stem miN *give to*: with subject *1*: *-2* minnan, *-3* minuk, *-25* minnunko, *-35* minkwa; subject *2*: *-1* mišyun,

[8] The prohibitive forms cited here occur in context with a preceding particle keko *don't;* this is not a preverb, however, as it occurs also as a complete utterance, with the meaning of general prohibition. The imperative forms may stand alone.

-3 minut, *-15* mišyak, *-35* mintwa; subject *3*: *-1* mišut, *-2* minuk, *-3′* minat, *-12* minnuk, *-15* mišyumut, *-25* minnak; subject *3′*: *-3* minkot, *-35* minkwat; subject *12*: *-3* minat; subject *15*: *-2* minnak, *-3* minko, *-25* minnak; subject *25*: *-1* mišyek, *-3* minek; *-15* mišyak, *-35* minkwa; subject *35*: *-1* mišwat, *-2* min-k·wa, *-3′* minawat, *-12* minnek, *-15* mišyumut, *-25* minnak.[9]

For the preterit, we may say: √pun is added, except that (1) final √t/ of non-preterit ending is dropped and √pun is replaced by √p·ut; (2) final √n/ of non-preterit ending is dropped and for *1* √pan is added instead of √pun.

TABLE OF *ta* NON-PRETERIT CONJUNCT ENDINGS

	1	*2*	*3*	*3′*	*12*	*15*	*25*	*35*
1		Unan	Uk				UnUko, UnUnUko	Ukwa
2	yUn		Ut			yak		Utwa
3	t	Uk		at	UnUk	yUmUt	Unak	
3′			Ukot					Ukwat
12			at					
15		Unak	Uko				Unak	
25	yek		ek			yak		Ukwa
35	wat	Uk·wa		awat	UnUk	yUmUt	Unak	

The participial endings differ from the conjunct (non-preterit) only in forms with *3′* or *35* subject; of these the following have been collected: *35–1* čUk, *35–2* Uk·Uk, *35–12* UnUkUk, *35–15* yUmUčUk, *35–25* UnakUk, and *35–3′* ačUk.

The stem Un *tell, say so to, ta*, regular in independent and imperative orders, is replaced by U (or by zero) in conjunct forms where the replacement does not lead to the juxtaposition, in basic form, of two strong, or weak but retained, vowels: thus nat *he said to him* (*3–3′*), but (with U or zero stem alternant) kot *the other said to him* (*3′–3*).

7.42. Animate Intransitive Verbs. Regular stems (type [1], **7.22**) have the following endings:

	NON-PRETERIT	PRETERIT
1	yan	yapan
2	yUn	yUpun
3	t	p'ut
3′	nUt	nUp'ut
12	yUko	(yU)kopun
15	yak	yakUpun
25	yek	yekUpun
35	wat	wap'ut

[9] In the table and in these cited forms I follow my notes; I suspect that the *25–35* form is given wrongly, and should be like the *2–15* form.

With stem py^{a}/$_{\bullet}$ *come*:

pyayan	pyayapan
pyayun	pyaypun
pyat	pyap'ut
pyanut	pyanp'ut
pyayko	pya(y)kopun
pyayak	pyayakpun
pyayek	pyayekpun
pyawat	pyawap'ut.

Class [3] stems, in š·Un, are the same except that *3* and *3′* non-preterit take endings √at and anUt respectively: mUčUmoš·Un *be stuck*: mčumoš·nat *he was stuck*, mčumoš·-nanut *the other was stuck*.

Class [2] stems, in t(·)Um, have a different set of endings; in the table which follows the √m/ of the final is included save where it drops upon the addition of the suffix:

	NON-PRETERIT	PRETERIT
1	man	mapan
2	mU(yU)n	mU(yU)pun
3	k	kUp'ut
3′	mUnUt	mUnUp'ut
12	mU(yU)ko	mU(yU)kopun
15	mak	makUpun
25	mek	mekUpun
35	mUwat	mUwap'ut

Except for preterit *3*, where to the non-preterit ending √k one adds preterit suffix in shape √p·ut, the formation of preterit from non-preterit is as for regular stems.

With nenUtUm *think*:

nentuman	nentumapan.
nentum(y)un	nentum(yu)pun
nentuk	nentukp·ut
nentumnut	nentumnup·ut
nentum(yu)ko	nentum(yu)kopun
nentumak	nentumakpun
nentumek	nentumekpun
nentumwat	nentumwap·ut.

OsamUkwam(O) *oversleep* is irregular, with the following forms:

wsamkwam(y)an	wsamkwamyapan
wsamkwam(y)un	wsamkwamyupun
wsamkwak, wsamkwamot	wsamkwamp·ut
wsamkwamnuk	wsamkwamnup·ut
wsamkwam(yu)ko	wsamkwamyukopun
wsamkwamak	wsamkwamakpun
wsamkwamek	wsamkwamekpun
wsamkwamwat	wsamkwamwap ut.

There may be more alternants.

sakU?Um *go out* has the same forms as OsamUkwam(O) except for the following three preterit forms: *1* sak?umapan, *2* sak?umpun, *3* sak?ukpun. Preterit *3′* is not recorded.

7.43. Transitive Inanimate Verbs. The conjunct endings for vowel stems (**7.23**) are identical with those for regular *ai* stems (**7.42**); those for consonant stems are identical with those for *ai* stems in t(·)Um (**7.42**). With *1*, *2*, and *12* subjects, plurality of the inanimate object is optionally indicated with a terminal √n in non-preterit forms, but is not indicated in preterit forms. Thus: pyetoyan *I brought it*; myanškakot *he was sick from it*; natyak *we* (*15*) *fetched it*; wep·otuk *he hit it*; waptumwat *they saw it.*

The special participial endings, for *3′* and *35*, are identical with the equivalent endings for *ai* stems: waptunčun *the other who sees it* (*3′–0*); wep·otnunčun *the other who hits it* (*3′–0*).

7.44. Inanimate Intransitive Verbs. We operate with the same four classes as for the independent order (**7.24**).

	REGULAR	√n	√t	mUkUt
NON-PRETERIT				
0, 05	k	k	k	mUkUk
0′	nUnUk	nUnUk	tUnUnUk	mUkUnUnUk
PRETERIT				
0, 0′	kUpun	kUpun	kUpun	mUkUkUp·ut
05	kUpuninUn	kUpuninUn	kUpuninUn	?
PARTICIPIAL				
05	kUk	kUk	kUk	mUkUkUk.

The participial has endings different from the other conjunct modes for *3′* and *35* only. *35* is čUk save for stems in t(·)Um, which has kUk with loss of the √m/. Stems ending in a consonant with a pattern of weak vowels such that the weak vowel just preceding the final consonant will drop, and all stems ending in a vowel, have nUčUn for *3′*; this includes those in t(·)Um when the U drops; all other stems have nUnUčUn for *3′*. Thus kask·uminčun *the other one who starts running* (*3′*); with stem čipUtUp *sit*, čaptupnunčun *the other one who is sitting* (*3′*). OsamUkwam(O) has *3′* participial wesamkwamnunčun, *35* wesamkwakuk.

(Other participial forms are like non-preterit conjunct.)

Examples: wawUyeya *be round*: wawyeyak *it* (or *they*) *are round*; wapUn *be morning*: wapkupun *it had been morning*; wUwUnUt *be good*: (?)wunkuk *the good ones*;[10] wišk-UyamUkUt *be hard*: wišk̨yamkukp·ut *it has been hard.*

[10] Note absence of √*ablaut*/ in this participial form, contrary to the statement in **7.11**. The form may be wrong.

SOME MOHAWK WORDS OF ACCULTURATION[1]

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1. Introduction
2. Possibilities
3. Use of English words
4. Assimilation
5. Extension
6. Description
7. Compounds
8. Guns
9. Metals
10. Writing
11. Cloth
12. Days
13. Religious words
14. Foreigners
15. New stems
16. Summary

1. This paper attempts to characterize some of the Mohawk language vocabulary of acculturation, that is, the words for articles introduced to the Mohawk Indians by the White man. Since the contact between the Whites and the Iroquois covers three hundred years, one would expect that the vocabulary in Mohawk for introduced objects and concepts would be extensive. Nothing comprehensive has been attempted here. Over two hundred words have been considered, but doubtless as many more could be found in an extended inquiry.

Weapons, articles of food and clothing, and religious ideas may well have been sources of the earliest introduced words. And as time passed, there have been added to the Mohawk vocabulary words for much of the material culture created since the industrial revolution. Agriculture, its tools and crops and processes; means of locomotion, new products, inventions and gadgets—all need to be talked about in the Indian language.

2. In theory, we might conceive the following possibilities in dealing with new vocabulary. FIRST: the English word might be used, as such, untranslated, unchanged. SECOND: the English word might be assimilated, or 'corrupted,' to follow the patterns of Mohawk phonetics, changed yet understandable (at least to the Indian) as the English word. THIRD: an old Mohawk word might be extended in meaning, and, by analogy, used to embrace the new object or idea. FOURTH: the new article or idea might be described as to function, chief characteristic, quality or purpose, by the modification of stems already present in the language. This is a creative process, although the linguistic materials must be present. FIFTH: two Mohawk stems might be recombined to stand for a composite meaning. SIXTH: completely new words, consistent with grammatical and phonetic usage of Mohawk, might be created.

3. The words for which we find no Mohawk equivalents are generally of recent introduction. Automobile, bus, machine, motor, gasoline, airplane, machine gun, batteries, celery, rhubarb, chocolate, beer, radio, factory—and other words—are always spoken in English. These omissions of Mohawk translations or equivalents might be explained by the fact that when these things were introduced all of the Mohawk had had some schooling and found little difficulty in pronouncing the English words correctly.

4. On the contrary, the English words which have been assimilated phonetically

[1] This study was undertaken in conjunction with a general survey of acculturation at Six Nations Reserve, Ontario, made possible by a predoctoral Fellowship from The Viking Fund. The writer is indebted to Hilton Hill, Seneca member of the Six Nations, for his invaluable aid in collection and interpretation of vocabulary.

into Mohawk seem to date from an earlier time when English sounds were difficult for the Indian to pronounce. In this category we find the word for *pennies*, or *pence*, pronounced bé·nɪs, and from this comes bé·nɪs o·gų́ra or *some cents*, meaning *change*. *Coal oil* becomes gó·laɪ, *matches*, má·tsɪz, *cotton*, gót'n. *Tea* is pronounced di·, *coffee*, gó·fi, and *watch* becomes wa·ts.

No doubt a thorough search would yield many more words of this description.

Given names, most of them the old Biblical ones, have been generally assimilated to Mohawk pronunciation.

For instance, among women's names we find: wá·ri for *Mary*; ya gǫ wí·n for *Jemima*; sá·rą *Sahrah*; k'aderi''a *Katharine*; ni'gɪa *Ellen*; shá·rət *Charlotte*; a·ri'zəkwa *Elizabeth*; é·fə *Eva*.

And among men's names, there are: a'i'·zak for *Isaac*; dá·n yən for *Daniel*; á·dų *Adam*; á·ne·runk *Henry*; dōōn'wɪs *Thomas*; dá·wɪt *David*; á·rų *Aaron*; ó·zɪs *Moses*; yá·gwɪk *Jacob*; á·gwe·rų *Abraham*; gwi'te· *Peter*; wír əm *William*.

An interesting assimilation may be present in the word wa·stǫrǫ́·nǫ· *American*, which is probably from the word wá·stǫ *Boston*, and means people from Boston.

5. By an extension of the meaning of an old Mohawk word, for some reason analogous, the introduced object may be denoted. For example, the old word a'ó·na *bow* is given the meaning *yoke*; the old word ó·hwisɛ *ice* also signifies *glass*; o·nǫ́ndji meaning *head*, by analogy is used for *cabbage*; o·s'wún'da, the old word for *coal*, or *charcoal*, means *ink* as well, although some informants insist that ye·yadǫ́kwa, *for writing*, must be added to make the meaning *ink* thoroughly clear.

Another type of extended meaning appears in the use of o·'wi'sta the old word for *metal*, to signify *money*, either in bills or coin. Again, the *second storey* of a house is called é·nągų the word for *on high*.

What we might term particularization of meaning for a new connotation occurs in the word for *Tuberculosis*, which is called wasagatserákso or *bad cough*, and *photograph* is designated gayá·darɛ a word that contains the stem *body* and may have been used for pictographs or other representations of humans or animals in the old days.

The old word djinųweyųste·dá·kwa (the place where maple sap is boiled down) is the word used for the modern *canning factory*.

6. In the category of description the great majority of words of acculturation are found. They describe as to specific characteristic, quality or function, the new object. *Rubber* is simply yonadir'únt'ha (*it stretches*); *peaches* degaguntfará·rų (*they have fur*); *barley* deyos'kúrhųdɛ (*it has whiskers*); *pears* gatshe·gá·hik (*fruit, the shape of a bottle*); *whisky* gane·gashátste· (*strong water*); *wine* or *vinegar* de·yonegayó·djis (*sour water*): *Wine* is also called, by extension, yǫ́·naharadasé·hų the old word for vine or grapes.

The names of animals may be descriptive of their noises, such as kwéskwés for *pig*; kítkit for *chicken*; síksík for *sheep*. Other animals are given names that describe their peculiarities: gaɪyadáge·ras for *goat* (*it has a smelly body*); deyodiná·garɪs *ox* (*it has long horns*); de·yodinagarǫndǫ́'a *lamb* (*it has short horns*); de·yų'wúskwarų *cow* (*the teats stick out*); but the *horse* is described by man's usage as yagosá·das (*something you ride*).

The word o·'wi·stó·sɛra *butter* seems to be related to no other stem. One explanation given was that it was derived from the noise of the shaker used in butter making (before the churn), this noise "whiswhis" might have been the origin of o·'wi·stó·sɛra.

Other words of this class describe the function of the object. For instance: o·nitskwá·ra *chair* (*you put your hips*); a·dekwá·ra *table* (*you put your food*); deyųrasidarákwa *footstool* (*place to put your feet*); deyųgaruntrųkwá·t'ha *rocking chair* (*used for rocking*).

Words about the railway are descriptive. A *train* or *locomotive* is de·yotsɛrɛtsɛrá·ga (*that which goes fast*). A *freight train* is called ga·ga'rényɛs (*it carries*), and is the

word currently used for *truck*. A *depot* or *station* for train or bus is simply de·gadá·st'ha (*it stops*).

Many other descriptive words could be added, such as: yegarhathó'ta *plow* (*it turns over*); djiyɛtsgwaést'ha *barn* (*flailing place*); yụndaweyá·'ta *school* or *meeting place* (*where you come in*); wade·runó·t'ha *phonograph* (*it makes music*); ga'whistáɛks *clock* (*struck metal*—a description of the bells of the earliest clocks, probably); o·té·sɛra *flour* (*made into dust*).

A large class of descriptive words are formed by stating the use or result of the article or activity and adding the suffix dá·kwa *used for*. Among such words are: de·ye·da'raridá·kwa *harrow* (*used for breaking clods*); ye·no·sadarihadá·kwa *stove* (*used for heating*); ye·kunya·t'dá·kwa *cook stove* (*used for cooking*); djiyűnde·nadarundá·kwa *oven* (*used for making bread*); yihã·sɛro·dá·kwa *lamp* or *candle* (*used for light*); yagonɑk'dá·kwa *fourth finger of left hand, ring finger* (*used for marriage*); ye·ho·ndji·sdá·kwa *blacking*, for stove or shoes, (*used for making black*); yọde·skwọdá·kwa *frying or roasting pan* (*used for roasting*); de·ye·ne·gűntyedá·kwa *boiler* (*used for boiling*); ye·ne·gadarihadá·kwa *tea kettle* (*used to put water on the stove*); yűderụna·yundá·kwa *church* (*used for prayer*); yụderənodá·kwa *musical instrument* (*used for making music*); deyụrtga'rundá·kwa *eye glasses* or *spectacles* (*used to double your vision*); deyụnts'kurhụdá·kwa *razor* (*used for taking off fuzz*); yụnisụwadase·dá·kwa *screw driver* (*used for driving screws*).

7. The combination of two ideas, or two stems or words to denote a new meaning, does not form a completely new category of Mohawk words, since these are as descriptive as the words just mentioned. However, they differ in that the description contains two concepts.

Among such composite words we might list: ó·werayodék'ha *gas* (*burning wind*); wada'ụnraní·yụndɛ *gate* (*hanging rail*); garúnwarɛada'úra *wire fence*; gúyeyodék'ha *kerosene* (*oil that burns*); de·hadiyadụserá·yụns *playing cards* (*gambling with papers*); gas'whunkaragwundá·rkwụ *floor* (*boards placed*); de·yes'whunka·ryák'ta *saw* (*board cutter*); de·ye·rundákt'ha *cross-cut saw* (*log cutter*); yụntdewanada'ást'ha *telephone* (*you put your voice in*); ra·ditsɛrɛtsɛró·ni *coach factory* (*place where they make coaches*).

8. Rather than continue with lists of examples, we can organize some words by subjects. Guns must have been talked about from the earliest days of contact. Now a *rifle* or *shot-gun* is called gá·họ.nrɛ, and may be an altogether new stem, though it seems to convey the meaning 'hollow'; a *cannon*, naturally, is gă·họ·nregó·wa *big gun*; a *pistol* or *revolver* nigahọnrésa *short gun*. Another stem is present in garọndát'sta *I have something to shoot with*, meaning *gun*, and this stem seems associated with the meaning 'blowing.' *Bullets* or *ammunition* are o·nayó·wa·nɛ *big stones*; explosives are designated dewaderanegá·runs *something that bursts*, and means *bomb* as well.

9. Another interesting group of words are the names of the metals, which illustrate descriptive compounding. garístadji the old word for *iron*, is modified by different adjectival ideas to denote other metals. yụrɪstanírụ *steel* (*hard metal*); o·djínagwagarɪstanórụ *gold* (*yellow, expensive metal*); gụrágụgarɪstanórụ *silver* (*white, expensive metal*); garɪstagúra *tin* (*white metal*); gawɪstaná·wuns *lead* (*metal that melts*).

The word ye·rɪstaya'ák'ta *hammer* contains the stem *iron* and means literally *two pieces of metal pounded together*. djigarɪstagọdá·rhụ *railroad tracks* means literally iron laid down; and the same stem is present in garúwa·rɛ *nail, wire* or *pin* (*iron stretched out thin*).

10. Since writing is sometimes considered the distinguishing trait of civilization, we might examine the Mohawk vocabulary which deals with reading and writing.

gahyádǫ means *it is written*, and may possibly be a new stem. Something written, a *book*, or something to write on, *paper*, is designated gahyadǫ́sɛra. *Pencil* or *pen* is called yehyadǫ́kwa (*used for writing*). skaragé·wasgahyádǫ *eraser* is *something that wipes out writing*. A *will* is ro·hyadǫsɛ'ró·ni or, literally, *he has made a paper*. *Typewriter*, and *newspaper* and *printing* refer back to the stem for *metal*: degarɪstóraraks *typewriter* (*metal for writing*); degarɪstőrará·gų *newspaper*, or anything *printed* (*metal pressed in*). Probably through association, the word for *reading* is an extension of the old word for *learning*: sa·dade'rihų́yɛ is the imperative '*read and learn*'; and yų́dade'rihųyanít'ha *school*, is *the place where you read and learn*.

11. The early Jesuits were particularly concerned with clothing the Iroquois, and some of the words for cloth and sewing may be ancient. á·'sa·rɪ *cloth* seems to be unrelated to other stems, and signifies specifically cotton cloth. garisé· *flannel* or *woolens* contains the meaning 'rough.' Sewing must be an old stem, but *sewing machine* is ganikų́kwa simply *it sews*. *Buttons*, which were probably introduced, are called o·dji'·kwa, perhaps an extension of the word for *bulbs*, and used also for *turnips*, because of shape, no doubt. o·nɪ́da·rɛ another word for *cloth* is found in ganɪadaró·hari *flag* (*cloth at the top*); wadenɪadaró·t'ha *sailboat* (*cloth hanging up*); and in yųnɪadarų́ndų *curtain* (*cloth hanging down*). o·djí·sto· the word for *star*, by analogy, forms the stem of o·djistó·kwa *print cloth* (*starred*).

12. The seven-day week must have been introduced at an early date, and names of the days are interesting in all languages. Modern Mohawk usage has yawųndų dą́'o *Monday* (*end of the week*), though some old-fashioned people still call *Monday* djin'yɛnóharɪs *washing day*; degɛní·hadǫnt *Tuesday* (*second day*); a·sá·hadǫnt *Wednesday* (*third day*); gayeri'hadǫnt *Thursday* (*fourth day*); 'whískhadǫnt *Friday* (*fifth day*); *Friday* has another name, ų́djiniyų́tcié·riyaks or *nail-cutting day*. It used to be thought it would bring you money to cut your nails on Friday. djinɪenakdóharɪs *Saturday* (*floor-scrubbing day*) is the common name, though it may be called yayákhadǫnt *sixth day*; ya'ondadogų́ndų *Sunday* (*holy day*).

13. gų́ndi *holy* is combined with *place* to make o·nų́nsadogų́ndi *church* or *holy place*; and with *book* to make gahyadǫ́seradogų́ndi *Bible*.

Hell is called o·né·so and seems to have no other meaning; while the *devil* is designated as o·ne·so ró·nų or *the one who lives in Hell*. *Sin*, which may or may not be a new concept, is ga 'ri 'wha né· rų *evil accomplished*, a word close to ga'ri'whá́ks'sų *evil thing* or *bad news*. gų́n di 'ro ya gɛ ró·nų *angels* combines gų́n di *holy* with ga 'ro yá· gɛ *heavens* and adds ró·nų *dwellers*.

14. Finally, we might consider the names chosen by the Mohawk for the various new peoples with which they have come in contact. ra·'se runi'·a is a *White man* generally, literally an *axe-* or *knife-maker*. wa·stǫ rǫ́·nǫ means *Americans*, as already mentioned. The *English* received the name de·yor hunts há·gɛ which is derived from the word for *dawn*, and may signify either that the people came from the east or that their skins were light like the early dawn light. The *French* were called 'ka na dɪé'a meaning *town-lovers*; the *Germans* and *Dutch* are o·skǫ́ harɛ'á·gɛ or *light-haired people*. Of other races, only the Negro has received a Mohawk name, rã́·di hų dji'· ha *black men*.

15. We have not listed completely new words, created to fulfil the need for naming a new object. But in passing we have mentioned some words which we were unable to trace to others, such as *gun*, *cloth*, *hell*. o·né· gɛ ri *wheat*, is another such word, its connections with other stems not being traceable. Whether such words were ac-

tually post-contact linguistic inventions, whether they were originally descriptive and are now survivors of a once common stem, or whether they may have been borrowed from other tribes and through long usage been assimilated, remains an open question.

16. To sum up, we have found the great majority of the Mohawk words for introduced articles are descriptively organized from the body of Mohawk stems, though we have mentioned other types of acculturation vocabulary. It would be interesting to extend this inquiry and to explore similar vocabulary in the other Iroquoisan languages in the various locales in which the Iroquois are now situated, in the hope that correspondences and differences might throw some light on linguistic change and might illuminate some of the historical differences among the various Iroquoiṣan groups in their varying acculturation situations.

TAOS I: A LANGUAGE REVISITED

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1. Introduction
2. Phonological restatements
  2.1. Utterances, clauses, phrases; external juncture
  2.2. Internal junctures
  2.3. Words
  2.4. Tones and stresses
  2.5. Consonants
  2.6. Vowels

1. The present paper is the first of a series embodying restatements of OTG,[1] and presenting hitherto unpublished text material, with analyses. It also contains some general conclusions resulting from what were in effect two entirely distinct sets of field observations. In most studies of the languages of preliterate peoples, the material is collected in one extended field trip or several such trips close together in time, with no further contact with the speakers; it becomes a closed file, as it were (very much like the extant material of a dead language). On the other hand most descriptive studies of the languages of literate peoples, especially those of Western culture, are based at least in part on written material, and the investigator, who usually speaks the language, maintains continuous contact with it. Here, however, is a case where only minimal contact was maintained with largely unanalyzed written material, and no contact at all with the spoken language was had for almost exactly ten years. During the interval the investigator's theoretical background changed, and on re-entering Taos field work he was able to attack it almost as if it were something brand new, but with a decided head start.

Revisiting Taos after ten years enabled me to hear the things which I knew had to be there in order to analyze fully the phonological limits of utterances and parts of utterance. At the time of my first visits my own theoretical position in these matters of juncture and stress patterns was not fully formed —in fact, no one anywhere had as yet talked about juncture. But the phonetic facts of onset and release were, of course, recognizable, and my recordings contained much evidence for them. What was needed was a proper analytical frame of reference. During my time away from Taos I developed such a frame of reference, and was able to proceed directly to the job of checking the old material and gathering new material bearing on the point at issue.

But it was not only new phonological insights (detailed in **2** below), that were developed during the period of ten years between visits. I had also learned of new ways of eliciting morphological information, and of many kinds of text to take. In morphology, it happens, I got little new material, though a few new suffixes turned up. In the syntax, however, I found out many new things. My

[1] In the fall of 1935 I began to record the language of Taos Pueblo, New Mexico. Through that academic year (at intervals) and the summer of 1936, and again in the summer of 1937, I worked with three informants, collecting lists of vocabulary items, paradigm, and texts. The material collected was worked up with various degrees of completeness, the chief results having been published in my Outline of Taos Grammar, VFPA 6.184–221 (1946), which see for a bibliography of previous publications (p. 185); this work will be referred to below as OTG, with page or section references.

In the spring of 1947 I received a grant from the American Philosophical Society which made it possible for me to spend the month of June, 1947 at Taos (the assistance rendered me being hereby gratefully acknowledged). I renewed contact with my three informants, but was able to work with only two of them, the third being otherwise occupied at the time. Much new text and vocabulary was collected.

original text recordings were almost entirely of myths and other stories, though I had one autobiographical account. This time I also recorded myths; but in addition I got autobiography from both informants, and I got conversational material. It was in these types of texts that I discovered new constructions and an entirely different statistical distribution of old constructions. And I obtained the necessary phonological basis on which to try to construct an objective syntax not founded on translation meaning.

There is more to be learned from this revisiting of Taos than just the advantage of rechecking. There is the reaffirmation of the fact long known by most linguists that anything at all said by the informant is text. This point is especially important for the anthropologist who is not primarily a linguist. If he wants folklore or ceremonial texts, he may take the trouble to get the linguistic analysis needed to record them, but he will want nothing else. He will thus record only a part of the language, and even where his job of analysis is good, his grammar and dictionary may be of minimal instructive value to the general or comparative linguist.

Of course, the anthropologist with wide outlook knows that not only is everything said a text, but also that every text is a cultural as well as linguistic datum. He does not always realize, however, that the value of such data depends on the accuracy with which they are recorded and analyzed. When he sees that a linguist rechecking his own material after ten years is led to many important restatements, he will probably come to appreciate the importance of good recording and analysis both on the original visit and on return trips.

We need, then, more restatements, more revisiting. The linguist will see more widely the cultural problems of which he records the linguistic expression, and the ethnologist and social anthropologist will see the linguistic problems inherent in the material he gathers, if each goes back more than once, if each reads the other's publications, if each realizes that there is, in science, never any closing of the files.

2. There is no place in the present article for discussion of general theory. But the phonological restatements in the following sections imply, as intimated above, a number of changes in point of view from those assumed in OTG.

2.1. The Taos UTTERANCE (cf. and contrast OTG §2.21) is seen to consist of a sequence of VOWELS and CONSONANTS in any of the possible orders, and accompanied by certain TONES (see below, **2.4.**), these groupings being further accompanied by one of a number of STRESS-and-JUNCTURE patterns and the whole being delimited by an INTONATION pattern. I am not prepared to describe the intonation patterns in detail; there is, however, a final fall of stress with slight rise of pitch; this is preceded by a loud stress combined with the highest pitch allophone of the tone inherent in the affected syllable; the utterances begin usually with a middle pitch; the total effect is not very different from an ordinary English statement except in the "whining" impression given by the rise at the end. I continue to mark this total pattern by a space at its beginning and a period at its end. Within an utterance concluded by the period, there may be partial rise or sustaining of pitch, with pause; this I continue to mark with a comma. Utterance fragments concluded by comma or period are henceforth called (phonemic) CLAUSES. Within a clause there may be a slight fall of pitch followed by pause (which may be extremely short); this I mark by internal space (except where, for special discussion purposes, the mark || may be used). An utterance fragment ending in such a space is a (phonemic) PHRASE. The pause of greater or less length preceding an utterance and at the points marked by space, comma, or period, with its accompanying silent transitions from the pre-pausal to the post-pausal positions of the speech organs, is the pho-

neme of EXTERNAL JUNCTURE. Summarizing formulas for these parts of an utterance and for complete utterances are (using || for external juncture):

PHRASE: /||...||/; summarized as /F/.

CLAUSE: /||...||,/ (non-final); summarized as $/F_1...F_n,/ = /K^N/$. /||...||./ (final); summarized as $/F_1...F_n./ = /K^F/$.

UTTERANCE: $/||...||_1(,)||...||_2(,)...||...||_n./$; summarized as $/F_1 \sim K_1^N...F_n \sim K_n^N K^F/ = /U/$.

2.2. A phrase may have within it one or more points at which the movements of the organs stop as if before pause, and then begin again as if after pause, but without any actual pause. At such points there is said to occur the phoneme of PLUS-JUNCTURE (marked by a hyphen in ordinary orthography and by /+/ in formulas). Every phrase has within it at least one LOUD STRESS—/ˈ/ (see below, **2.4**), but may have more than one, several loud stresses being always separated by plus-juncture somewhere between them. An exact statement of the allophones of such succeeding loud stresses in not yet possible, except that the last seems to be the loudest. In addition to the loud stresses, a phrase may also have any number of MEDIAL (/ˌ/) and WEAK (unmarked, or /ˇ/ where necessary) stresses, within limits not yet exactly statable (see below **2.3**).

2.3. A phrase having within it only close junctures, and only one loud stress, is said to contain a single (phonemic) WORD. The summarizing symbol /W/ may be used. A phrase having within it one or more plus-junctures, one loud stress between || and +, or + and +, or + and ||, and having in the other positions between OPEN (i.e. plus or external) junctures any other stresses (loud, medial, or weak), is said to consist of as many words as one more than the number of plus-junctures. The phrase formula may be thus re-expanded: $/F/ = /||W_1 + W_2 + ...W_n||/$.

The word is subject, of course, to precise phonemic characterization not only in terms of stresses, but also in terms of tones, consonants, and vowels. But, be it noted, the word does not involve the phonemes of external juncture, or of intonation.

A word, then, must have within it one loud stress, and may have in addition a number (from one up) of weak stresses or medial stresses or both (see OTG §2.223 for some of the possible patterns and combinations).

The statement that a word begins always with a consonant (OTG §2.231) is now to be modified by saying that it begins with a consonant (C) or consonant-cluster (CR) (see **2.5**). The word also contains at least one vowel (V) or vowel-cluster (Vv) (see **2.6**). If it contains more than one vowel or vowel-cluster there is C or CR before each V or Vv. The word (and each of its syllables) ends in V or Vv, or optionally in certain kinds of consonants (S) or consonant sequences (SS). Accompanying each V or Vv is a tone (T) (see **2.4**). The formula for a word is (A is used for stress: the symbol & is read 'combined with'; () and [] indicate options—C(R) means C or CR, etc.):

$/W/ = /C(R)_1V(v)_1(S)_1C(R)_2V(v)_2(S)_2...C(R)_nV(v)_n(S[S])_n \& T_1T_2...T_n \& A_1A_2...A_n/$.

When the morphological level of analysis is reached, further statements about the word will be found necessary. Suffice it to say here that a word is found to consist morphologically of a BASE morpheme accompanied by PREFIXES and SUFFIXES (the lists of both these kinds of affixes include items that are phonemically zero), combined and unified by a special kind of affix, a SUPERFIX, which is phonemically a stress-pattern, and is the word-closing morpheme; the base, prefix, and affix morphemes are segmental morphemes, consisting of one or two (possibly more in a few cases) sequences C(R)V(v), accompanied by an inherent tone on each V(v).

It should be emphasized that, aside from the immediately preceding paragraph, all statements in the subsections of part **2** of the

present article are phonological, and do not presuppose or involve any morphemic analysis. On the contrary, they furnish a purely objective basis for morphemic and syntactic analyses, based on things heard when the language is spoken.

2.4. In OTG §§2.221–2 the stresses are given as loud, medial, weak, and the tones as normal, high, low. There were said to be seven kinds of syllables—loud normal, medial normal, loud high, medial high, loud low, medial low, and weak undifferentiated as to tone. It is further stated that, with the high and low tones, medial stress and loud stress seemed to be complementarily distributed, and accordingly the notation had only five symbols (illustrated with the vowel a): 'a loud normal, ˌa medial normal, á high loud and medial (if there was a normal loud in the word, or in certain sequences with a low or another high), à low loud and medial (same proviso as for high), and weak unmarked.

The 1947 material made possible the restatements above about clauses, phrases, words, and the junctures, and in terms of the new statements, it seems clear that the supposed complementation in the high and low tones does not exist—certainly not in phrases, and probably not even in words. I have therefore had to set up a notation with seven symbols (there is no distinction of tone with weak stress), and have revised the whole stress-tone marking to make it symbolically systematic. For the three tones the basic symbols are: á high, a normal (in formulas where the absence of a mark is not sufficient, the symbol ā can be used), à low. The three stresses are then indicated by the same three symbols—ˊ loud, medial, no mark (or ˘) for weak (used without vowel symbols in morphemic writing, as ˊ, ˋ, etc.). The two sets of symbols are combined to produce the following phonemic notation: á loud normal, à medial normal, a̋ loud high, ă medial high, â loud low, a̗ medial low, a weak (normal, that is, there being no weak low or weak high except as allophonic variants).

The new notation corresponds to the levels of organization of the two sets of accentual phenomena in the structure of the language. The tones are inherent in various kinds of structural elements, and occur not in patterns but as adjuncts to individual vowels or vowel clusters. The stresses, on the other hand, occur in patterns which delimit words and characterize phrases, and the stress of any syllable is a function of the position of that syllable in a word or phrase, being subject to patterned variations.

2.5. In OTG §2.233 the Taos consonant phonemes are listed as: ʔ, b, c, c', d, g, h, k, k', k_w, k_w', l, ɬ, m, n, p, p', pˤ, r, s, t, t', tˤ, w, x, x_w, y. There is no question that all of these are in contrast. But it does not follow that they are all to be treated as unit phonemes; the argument from morphophonemics (OTG p. 195–6) is beside the point; if some of the entities are reinterpreted as clusters, the morphophonemic statements will simply be altered, and, in fact, will be, in many cases, more concise. Any other arguments that can be adduced for the unit-phoneme interpretation of the groups with double articulation appear circular.

It was the rehearing of the material in 1947 that tipped the scales in favor of polyphonemic interpretation of the doubly articulated items in the above list, an interpretation that I had actually considered from the very beginning, but had hesitated to adopt because of what may be said to have been a prevailing theoretical trend among Americanists at the time of first formulation.

As stated in OTG (p. 196–7), the phoneme there written ʔ, and which I now can write simply as ' (omitting it altogether in absolute initial in the practical orthography I am trying to teach my informants), is phonetically smooth initial onset, or internal hiatus, varying to a weak glottal stop; occasionally a strong glottal stop is heard. The "glottalized consonants" are released with the same

variation from mere hiatus before the next sound (always a vowel) to an actual glottal release. The phonetic identity seems to call for phonemic identification, and accordingly p', t', c', k', k_w' (see further for k_w reinterpreted as kw) are now interpreted as clusters of an initiating consonant followed by a releasing consonant (whence the symbol /CR/ used above, **2.3**). It might be argued that the first elements of these sounds are not properly identifiable as p, t, c, k, k_w, because the latter are fortis, while the glottalized sounds are lenis (in release, however, rather than in closure); b, d, g, are lenis (in closure) in all positions, and voiceless in some, and the question arises whether the first elements at least of p', t', k' might be b, d, g, and not p, t, k (there are no [^{d}z] or [gw] sounds); but internal sequences of b', d', g' contrast with p', t', k', not only in the separate sound features but also in syllable division—b-' versus -p', etc. The interpretation as /p t k c kw/ plus /'/ seems correct, then.

The phoneme h is described as having strong friction, and the "aspirated consonants" p' and t' are said to be "strongly aspirated (almost [p^x], [t^x])". Rehearing convinces me that the aspiration is phonetically most often [h] rather than [x]. It follows that the reinterpretation of p' and t' as the clusters /ph/ and /th/ is in order, /h/ being then another releasing consonant, similar to /'/.

The description of k_w and x_w as having gradually voiced labialization, and of k_w' as having completely voiceless labialization, stands (OTG p. 197). The phoneme /w/ is always fully voiced in syllable initial and syllable final. There is no reason, however, why it might not have a partially voiceless allophone after a voiceless syllable initial, and a completely voiceless one between two voiceless sounds. The k and x of k_w and x_w are like k and x elsewhere. The reinterpretation as clusters of /k/ and /x/ (C) with /w/ (R) seems in order. The only difficulty is that it then becomes necessary to interpret k_w' as /kw'/, the only three-consonant cluster in the language. That suggests that keeping the interpretation of the labialized velars as unit phonemes may be correct after all. Nonetheless, I am now adopting the notation kw, xw, kw', and, by implication, the polyphonemic analysis (a practical orthography would write the w on the line in any case). The sequence kw' is then, formulaically, /CRR/.

The exclusion of the "foreign clusters pl, pr, tr, kl, kr, fr (f appears only in clusters, for elsewhere Spanish and English f are replaced by p')" (OTG p. 196) from the normal phonemic set-up because of their being "rare and out of the general pattern" is, in my present opinion, very bad methodology. They are in the language, in a good number of words (whose history is not pertinent to the phonological analysis), and must be considered along with all other parts of the language. Moreover, with the interpretation of p', t', c', k', kw, xw as /CR/, it is perfectly clear that pl, pr, tr, kl, kr fit into the same pattern: they are clusters of p, t, k, with the releasing consonants /l/ and /r/. As for fr, it now becomes possible to interpret that as a second three-consonant cluster, namely, /phr/, with the same formula, /CRR/ as for kw'; the f in this cluster is often bilabial, so there is no phonetic difficulty. The order /hr/ contrasts with /w'/, but the phonetic reality requires these phonemicizations.

The question may be raised whether c could be interpreted as /ts/, and c' then as /ts'/, adding another /CRR/ cluster. The presence of /s/ as a syllable-final in a few words (historically recent loans again) speaks for its inclusion with such consonants as l, r, w under the formula /R/ (but, of course, /'/ and /h/ are never syllable-final, while b, d, g, m, n, y also appear as syllable-finals but are not found in clusters, so that the argument is not conclusive). However, c and c' are more often [č] and [č'] than [t^s] and [t$^{s'}$], while s is rarely [š]-like. I therefore retain, for the present, the monophonemic interpretation of c, and treat c' as a /CR/-cluster, though the polyphonemic analysis is very attractive.

The consonants b, d, g, m, n, y, w, l, r, the sonorants, were correctly interpreted in OTG (p. 195–6); they are the consonants that can appear as /S/, though all of them also appear as /C/, and w, l, r appear further as /R/. It has just been stated in the preceding paragraph that /s/ must be included with the syllable final consonants; this is a correction of the statement in OTG. The /SS/ groupings so far found are /lg/, /ng/, /yg/.

The Taos consonant phonemes are, then, /' b c d g h k l ɬ m n p r s t w x y/. All of these appear in syllable initial. Only b, d, g, l, m, n, r, s, w, y appear in syllable final. In clusters, c, k, p, t, x appear as first elements. As second elements of pre-vocalic clusters we have: ' after c, k, p, t; h after p, t; l after p, k; r after p, t, k; w after k, x. As third elements of pre-vocalic clusters we have only ' after kw and r after ph. The post-vocalic clusters are, as noted, lg, ng, yg.

The phoneme w, and accordingly the clusters kw and xw, do not occur before /u ụ/; w and y do not occur as syllable-finals after /u ụ/ and /i į/ respectively.

The diagram on p. 195 in OTG may be retained as a picture of the morphophonemic relationships of consonants but is no longer of any value on the phonemic level. A somewhat simpler diagram, based on the statements in the two preceding paragraphs, could be devised.

2.6. The vowel analysis given in OTG §2.232 remains unchanged. The vowel phonemes are: /a ą e ę i į o ǫ u ụ ə/; vowel clusters are: /ia ie ię uo əo ue/ (the last must be included, despite its limited occurrence). The statements about occurrence and morphophonemic relations are correct. However, phonemically there is no justification for the elaborate subdivision into front, back, high, mid, and low. There are vowels that occur alone—all eleven of them; those that occur as first elements of clusters—i, į, u, ə; and those that occur as second elements—a, e, ę, o. These relations are fully shown by the following diagram.

PROBLEMS IN ZAPOTEC TONE ANALYSIS

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1. Introduction
2. Asymmetry of the system
3. Mechanical perturbations from one phonemic level to another
4. Non-phonemic vowel length
5. Non-phonemic tone variation
6. Free alternation between phonemic tones
7. Phonemic pitch glides
8. Practical application

1. The purpose of this paper[1] is to present the problems of, and solution for, the tone analysis of Villa Alta Zapotec, of Oaxaca, Mexico.[2]

Villa Alta Zapotec has three tone registers: high /¹/, mid /²/, low /³/. These are demonstrated by CONTRASTIVE SETS. (A CONTRASTIVE SET may be defined as a group of tone-sequence patterns, in some particular position, which differ only by one tone in the same relative place in the sequence; the segmental phonemes of a contrastive set do not have to be uniform.)

Note the following contrastive sets, the first of which differ by slight segmental changes which are not pertinent to the tone contrast:[3] de³za¹n ya¹ *a lot of bamboo*: de³za¹n ya² *many steam baths*: de³za¹n ya³ *a lot of weapons*; ye³ṟ go²lï² *old flower*: bg^{w}e²ṟ go²lï² *old hoe*: ye¹ṟ go²lï² *old stone*; za³ ni²? *that bean*: ža² ni²? *that day*: za¹ ni²? *that lard*; ye³l na²jo² *night we say*: ye²l na²jo² *cornfield we say*: ye¹⁻²l na²jo² *sandal we say*; bče³čbo²? *he* (fam.) *pounded*: go²pbo²? *he* (fam.) *cared for*: ja¹tbo²? *he* (fam.) *dies*.

2. The most severe problem in this tone analysis is the lack of a system which is completely symmetrical. The contrastive sets which demonstrate the three tone registers are rare and are therefore easily overlooked. The reason that they are rare is because certain tone-sequence patterns do not occur preceding zero, but only as a result of certain tone perturbations. That is, their occurrence is due to the mechanical effect that one tone may have upon another.

2.1. In a tone language of three registers, there are nine potential tone-sequence patterns of dissyllabic words: those with /¹/ on the first syllable (¹ ¹, ¹ ², ¹ ³), those with /²/ on the first syllable (² ¹, ² ², ² ³), those with /³/ on the first syllable (³ ¹, ³ ², ³ ³).

These nine tone-sequence patterns theoretically could combine into three groups of three, and recombine into three more groups. With each of the nine tone-sequence patterns used twice, there are potentially six different groups of three which may occur in any of four positions, namely, preceding /¹/, /²/, /³/, and zero. These six different groups in the four different positions form 24 contrastive sets.

Three of the groups mentioned are the nine tone-sequence patterns as grouped above. The other three groups are those same nine potential tone-sequence patterns rearranged: those with /¹/ on the second syllable (¹ ¹, ² ¹, ³ ¹), those with /²/ on the second

[1] Data for this paper were gathered in connection with a field trip to Yatzachi el Bajo, Oaxaca, Mexico, during April and May, 1947, under the auspices of the Summer Institute of Linguistics. An outline of the data contained herein was presented as a paper at a meeting of the Linguistic Society of America, August 2, 1947.

[2] The analysis of the segmental phonemes I have taken from my colleagues Otis and Mary Leal. Only the tone analysis is mine. The segmental phonemes are described by them as: fortis p, t, č, k, k^{w}, s, š, ṣ, M, N, L, y; lenis b, d, j, g, g^{w}, ṟ, ṟ^{w}, z, ž, ẓ, n, l; glottal stop ʔ. The following additional consonants occur in Spanish loans: f, x^{w}, x, r, r˙. The vowel phonemes are: i, e, a, ï, o.

[3] Throughout this paper, two tones on one syllable are actualized as a glide from one tone to the other, whether on a single vowel, a vowel cluster, or a sequence of VʔV.

syllable (1 2, 2 2, 3 2), those with /3/ on the second syllable (1 3, 2 3, 3 3).

Preceding zero, dissyllabic words appear in only six of the nine potential tone-sequence patterns; and of the six contrastive sets, which potentially precede zero, two occur. Of these two, samples in which the segments are identical are very rare, or lacking, even though unconditioned tone contrast does occur. Of the sets which occur, one set has /2/ on the second syllable: 1 2 : 2 2 : 3 2; zši^{1}-tbo^{2}? *his* (fam.) *bone* : go^{2}tbo^{2}? *he* (fam.) *died* : Li^{3}šbo^{2}? *his* (fam.) *paper*. The other set has /3/ on the second syllable: 1 3 : 2 3 : 3 3; zši^{1}tī^{3}b *his* (animal's) *bone* : zi?i^{2}nī^{3}b *his* (animal's) *nose* : Li^{3}ši^{3}b *his* (animal's) *paper*.

Preceding a syllable of tone /3/, dissyllabic words appear in only six of the nine potential tone-sequence patterns, and of the six contrastive sets which potentially precede a syllable of tone /3/, one occurs; i.e. the set with /3/ on the second syllable: 1 3 : 2 3 : 3 3; bi^{1}-ši^{3}? nga^{3} *this grasshopper* : ni^{2}žī^{3}? nga^{3} *this milk*: ye^{3}žī^{3}? nga^{3} *this skin disease*. (This same group may also occur preceding a syllable of tone /2/ or a syllable of tone /1/.)

Preceding a syllable of tone /2/, dissyllabic words appear in only seven of the nine potential tone-sequence patterns, and of the six contrastive sets which potentially precede a syllable of tone /2/, two sets occur. They are: the set with tone /2/ on the first syllable: 2 1 : 2 2 : 2 3; g^{w}a^{2}gī^{1} ze^{2}n *big firewood* : zi^{2}gī^{2}? ze^{2}n *big gourd* : g^{w}a^{2}žī^{3}? ze^{2}n *big fat corncake*; the set with tone /3/ on the second syllable: 1 3 : 2 3 : 3 3; bi^{1}ši^{3}? ze^{2}n *big grasshopper* : g^{w}a^{2}-žī^{3}? ze^{2}n *big fat corncake* : La^{3}gī^{3}? ze^{2}n *big leaf*.

Preceding a syllable of tone /1/, dissyllabic words appear in only seven of the nine potential tone-sequence patterns, and of the six contrastive sets which potentially precede a syllable of tone /1/, two sets occur. Those sets are: those with tone /1/ on the first syllable: 1 1 : 1 2 : 1 3; g^{w}a^{1}gī^{1} ko^{1}bī^{2} *new firewood* : zta^{1}sǰo^{2} ko^{1}bī^{2} *our* (inc.) *new cup* : la^{1}pi^{3}s ko^{1}bī^{2} *new pencil*; the set with tone /3/ in the second syllable: 1 3 : 2 3 : 3 3; la^{1}pi^{3}s ko^{1}bī^{2} *new pencil* : g^{w}a^{2}žī^{3}? ko^{1}bī^{2} *new fat corncake* : La^{3}-gī^{3}? ko^{1}bī^{2} *new leaf*.

Therefore of the 24 potential contrastive sets of dissyllabic words occurring before /1/, /2/, /3/, and zero, only seven of the sets actually occur. Few if any of these sets have items with identical segments, even though the tone appears in clear unconditioned contrast.

The remaining thirteen sets are lost for predictable reasons. Nine are lost because of certain tono-mechanical changes. Four are lost because of a tono-mechanical restriction, i.e. a non-permitted perturbation. Four are eliminated by certain non-permitted innate[4] tone-sequence patterns.

2.2. There are 27 potential tone-sequence patterns of words of three syllables: those with /1/ on the third syllable and /1/ on the second syllable (1 1 1, 2 1 1, 3 1 1) or /2/ on the second syllable (1 2 1, 2 2 1, 3 2 1) or /3/ on the second syllable (1 3 1, 2 3 1, 3 3 1); those with /2/ on the third syllable and /1/ on the second syllable (1 1 2, 2 1 2, 3 1 2) or /2/ on the second syllable (1 2 2, 2 2 2, 3 2 2) or /3/ on the second syllable (1 3 2, 2 3 2, 3 3 2); those with /3/ on the third syllable and /1/ on the second syllable (1 1 3, 2 1 3, 3 1 3) or /2/ on the second syllable (1 2 3, 2 2 3, 3 2 3) or /3/ on the second syllable (1 3 3, 2 3 3, 3 3 3).

These 27 tone-sequence patterns theoretically could combine into nine groups of three, and recombine into nine more groups of three, and again into nine more groups. With each of the 27 tone-sequence patterns used three times, there are potentially 27 different contrastive sets of three which may occur in any of the four positions, namely, preceding /1/, /2/, /3/, and zero. These 27 different contrastive sets in the four different positions form a total of 108 potential contrastive sets.

[4] By an "innate" tone we mean the tone appearing on the basic alternant of the morpheme in question. This tone appears when the morpheme is in isolation, and any perturbations are described in terms of changes from the innate tone.

Actually only 16, not 27, of these tone-sequence patterns occur in any one position; and therefore the number of contrastive sets is greatly reduced. Notice that it is not the same 16 tone-sequence patterns which occur in any one position.

Of the 27 potentially contrastive sets, five occur when preceding zero. The set with tone /²/ in the third and first syllables occurs: ²¹² : ²²² : ²³²; ẓko²ne¹gʷbo²? *his* (fam.) *rabbit* : ǰẓi²tï²ï²bo²? *he* (fam.) *jumps* : ẓsa²ga²a³ke²? *their lard*. The set with tone /²/ in the third syllable and with tone /³/ in the first syllable occurs: ³¹² : ³²² : ³³²; bši³-bï¹ǰbo²? *he* (fam.) *picked more fruit* : ẓa³gï²ï²-bo²? *her* (fam.) *blouse* : ǰa³ke³ne²? *he thinks*. The set with tone /²/ in third and second syllables occurs: ¹²² : ²²² : ³²²; ye¹ya²zbo²? *he* (fam.) *will transplant* : ǰẓi²tï²ï²bo²? *he* (fam.) *jumps* : bža³gna²a²bo²? *he* (fam.) *married*. The set with tone /²/ in the third syllable and tone /³/ in the second syllable occurs: ¹³² : ²³² : ³³²; ga¹tï²ï³bo²? *he* (fam.) *lies down* : ẓsa²ga²a³kbo²? *their* (fam.) *lard* : ǰa³ke³ne²? *he thinks*. The set with tone /³/ in the third and second syllables occurs: ¹³³ : ²³³ : ³³³; ṣa¹ẓta²o³to³? *our* (exc.) *ancestors* : ẓsa²ga²a³kï³b *their* (animal's) *lard* : gʷLa³žï²ï²to³? *we* (exc.) *pulled up*. Groups similar to the one in this last set also occur preceding /¹/, /²/, and /³/, and these same words may be used in them.

Preceding a syllable of tone /³/, there are only three of the 27 potential contrastive sets. The set with tone /¹/ in the third syllable and tone /²/ in the second syllable occurs: ¹²¹ : ²²¹ : ³²¹; ye¹ya²z bo¹? . . .³ (in which . . . indicates any semantically permissible word of the innate tone indicated) *he* (fam.) *will transplant* . . . : be²ži²ne¹? . . .³ *he came* . . . : ẓa³gï²ï²bo¹? . . .³ *her* (fam.) *blouse*. . . . The set with tone /³/ in the third and second syllables occurs: ¹³³ : ²³³ : ³³³; see the preceding paragraph for examples of this set. The set with tone /¹/ in the third syllable and tone /³/ in the second syllable occurs: ¹³¹ : ²³¹ : ³³¹; ga¹tï²ï³bo¹? . . .³ *he* (fam.) *lies down* : ẓsa²ga²a³kbo¹? . . .³ *their* (fam.) *lard* . . . : ǰa³ke³ne¹? . . .³ *he thinks* . . . . The group of tone-sequence patterns, similar to the one in this last set, also occurs preceding /¹/ and /²/ and these same words may be used in them.

Preceding a syllable of tone /²/, there are three of the 27 potential contrastive sets. The groups of tone-sequence patterns are similar to those which may occur before a syllable of tone /³/.

Preceding a syllable of tone /¹/, there are four of the 27 potential contrastive sets. The set which has tone /¹/ in the second syllable and tone /³/ in the first syllable occurs: ³¹¹ : ³¹² : ³¹³; bža³gna²a¹bo¹? . . .¹ *he* (fam.) *married* . . . : bši³bï¹bo²? . . .¹ *he* (fam.) *picked fruit* : ǰa³tï¹ǰo³? . . .¹ *you* (sing.) *lie down again*. . . . The set which has tone /¹/ in both the third and the first syllables occurs: ¹¹¹ : ¹²¹ : ¹³¹; to¹čo¹pï¹ . . .¹ *a few* . . . : ye¹ya²-zbo¹? . . .¹ *he* (fam.) *will transplant* . . . : ga¹tï²ï³bo¹? . . .¹ *he* (fam.) *lies down*. . . .The set which has tone /¹/ in the third syllable and tone /³/ in the second syllable occurs: ¹³¹ : ²³¹ : ³³¹. The words of this group, are the same as those of the similar group preceding tone /³/. The set with tone /³/ in the third and second syllables occurs: ¹³³ : ²³³ : ³³³. The words of this last group are the same in all four positions, that is, preceding tones /¹/, /²/, /³/, and zero.

In summary then, of the 108 potential contrastive sets in the four positions, only 15 occur. The remainder are lost for predictable reasons. 43 of the sets have been eliminated by tono-mechanical rules. (28 of these are lost because in the position in which those sets would appear, the third syllable, tone /²/, would have been perturbed to tone /¹/. Four are lost because in the position in which these sets would appear, namely preceding tone /¹/, the sequence of syllables on tone /²/ would have been perturbed to tone /¹/. 11 of the sets are lost because of a tono-mechanical restriction, i.e. tone /²/ when in a sequence in which it immediately follows tone /¹/ cannot be perturbed.) 38 of the sets have been eliminated by certain non-

permitted innate tone-sequence patterns. (26 of these are lost because in a word of three syllables, there is no innate tone-sequence pattern in which the first two syllables are tone /¹/. 12 are lost because in a word of three syllables there is no innate tone-sequence pattern in which the third syllable is tone /¹/.) There still remain 12 which cannot be eliminated by any rules so far discovered, but which we have failed to find after considerable search. Each of those sets contains one tone-sequence of which the second syllable is tone /²/ and the third syllable is tone /³/. We conclude this uniformity of type to be significant and therefore expect never to find those 12 sets.

Notice that of the 15 sets which occur, only seven use different words; the remaining eight sets occur only as perturbations of the first seven. The words which have a third and second syllable of tone /³/ (¹³³, ²³³, ³³³) may occur in all four positions mentioned, i.e. preceding /¹/, /²/, /³/, and zero. Words which have a third syllable of tone /²/ and a second syllable of tone /³/ (¹³², ²³², ³³²) may occur when preceding zero. Those same words, with the third syllable changed from tone /²/ to tone /¹/, may occur when preceding tones /¹/, /²/, or /³/ (¹³², ²³², ³³² > ¹³¹, ²³¹, ³³¹). The words which have a third and a second syllable of tone /²/ (¹²², ²²², ³²²) may occur when preceding zero. Those same words with the third syllable changed from tone /²/ to tone /¹/, may occur when preceding tones /²/ and /³/ (¹²², ²²², ³²² > ¹²¹, ²²¹, ³²¹). The other four sets of words occur in only one position.

The lack of so many patterns makes it difficult to find the contrasts, and even if the investigator does find them, many of them do not have identical segments.

3. Turning from the actual absence of certain potential contrastive sets, we now focus our attention on the tono-mechanical changes, or perturbations, which are responsible for so many of these losses. These tono-mechanical interferences cause difficulty, not only through the loss of the contrastive sets, but also because they change the tones of particular morphemes, so that the investigator finds it very distressing to locate points of reference which are unchanging in phonemic pitch, and to which other pitches can be compared for analysis of contrasts. If he analyzes a contrast of pitch in one context, and if he assumes that this tone pattern remains the same in another context, he may fall into serious error, if and when one tone is substituted for another without his being aware of it. Thus, the difficulty of analyzing the number of Zapotec tones is seriously increased.

3.1. Tone /³/ morphemes are divided into three classes: Class A, morphemes whose tone cannot be perturbed; Class B, morphemes whose tone may or may not be perturbed depending upon the particular context; Class C, those tone /³/ monosyllabic suffixes which become perturbed when the stem to which they are suffixed is perturbed.

3.1.1. Class A, those tone /³/ morphemes which cannot be perturbed regardless of the context in which they occur. That is, they remain tone /³/: Li³š ~ yi³š (class A) *paper*; preceding a syllable of tone /³/: Li³što³ʔ *our* (exc.) *paper*; preceding a syllable of tone /²/: Li³šbo²ʔ *his* (fam.) *paper;* preceding a syllable of tone /¹/: yi³š ko¹bĭ² *new paper*.

3.1.2. Tone /³/ syllables in Class B[6] are those morphemes which are tone /³/, but

[6] Some tone /³/ class B, stems have suppletive stems for the possessed forms. These suppletive stems have either tone /¹/ or a glide from tones /¹/ to /²/. ya³g *tree* : ʒya¹⁻²g *tree* (possessed); ži³t *bone* : ʒši¹t *bone* (possessed). The suppletive stem for the first person singular may be of a different tone than the suppletive stems for the other persons. Notice, therefore, the different tones which must be used for the one morpheme. The innate tone, tone /³/, class B, ya³g *tree*; preceding a syllable of tone /²/, ya²g ni²ʔ *that tree;* possessed by the first person singular, ʒya¹ga³ʔ *my tree;* possessed by another person, ʒya¹⁻²gbo²ʔ *his* (familiar) *tree*.

which may or may not be perturbed according to their context. These morphemes are never perturbed when they precede a syllable of tone /³/, but they are perturbed to tone /²/ when they precede either a syllable of tone /²/ or a syllable of tone /¹/. This perturbation occurs both if the following syllable of tone /²/ or tone /¹/ is within the word, and if it occurs in the following word; ye³z ya?a³ (class B) *fresh corn on the cob*, ye³n (class B) *neck*; preceding a syllable of tone /³/: ye³nto³? *our* (exc.) *necks*, ye³z ya?a³ nga³ *this fresh corn on the cob*; preceding a syllable of tone /²/ within the word: ye²nǰo² *our* (inc.) *necks*; preceding a syllable of tone /²/ which is in the following word: ye²n na²ǰo² *neck we say*, ye²z ya?a² ʒe²n *big fresh corn on the cob*; preceding a syllable of tone /¹/: ye²z ya?a² ko¹bī² *new fresh corn on the cob.*

A syllable which is innately tone /³/, class B, may be perturbed, the first time from /³/ to /²/, to³ *one* + go¹ *potato* > to² go¹ *one potato*; the second time from /²/ to /¹/: to³ *one* + čo²pï² *two* > to²čo²pï² *a few*, then to²čo²pï² *a few* + go¹ *potato* > to¹čo¹pï¹ go¹ *a few potatoes.*

Certain tone /³/ word pairs which are homophonous when preceding zero have a tonal contrast when preceding a syllable of tone /²/ or tone /¹/. This is because of the tono-mechanical differences in sandhi. Preceding zero: bia³ (class A) *cactus*, bia³ (class B) *animal.* Preceding tone /²/: bia³ go²lï² *old cactus*, bia² go²lï² *old animal.* Another word pair, preceding zero: ya?a³ (class A) *market place*, ya?a³ (class B) *mountain*; preceding tone /²/: ya?a³ na²ǰo² *market place we say*, ya?a² na²ǰo² *mountain we say.*

3.1.3. Class C suffixes are innately tone /³/, but may be perturbed, or may remain unperturbed, along with, and depending upon the stem to which they are suffixed. Notice that -o³? *you* (sing.) is tone /³/ and remains tone /³/ when suffixed to a tone /³/, class A, stem, even when followed by a syllable of tone /²/: ǰa³kdo³? (class A and C) *you* (sing.) *think*, ǰa³kdo³? ni²? *you* (sing.) *think there.* This same morpheme -o³? *you* (sing.) when suffixed to a syllable of tone /³/, class B, stem, is perturbed to tone /²/ when followed by a syllable of tone /²/ or tone /¹/. Preceding zero: ǰa³zo³? (class B and C) *you* (sing.) *plant;* preceding a syllable of tone /²/: ǰa²zo²? ni²? *you* (sing.) *plant there.*

The descriptive order of the suffixation of this class C morpheme is as follows: First, the suffix is added to the stem, with the appropriate perturbation or lack of it. Then certain tone changes may be made in the stem to show aspect. Notice that even when the innately tone /³/, class B, stem has, with the addition of aspect, become tone /¹/, the class C morpheme is still perturbed when preceding a syllable of tone /²/. Preceding zero: go³to³? (class B and C) *you* (sing.) *died*, ga¹to³? (class B and C) *you* (sing.) *will die.* Preceding a tone /²/: go²to²? le² *you* (sing., with subject pronoun) *died*, ga¹to²? le²? *you* (sing., with subject pronoun) *will die.* Notice that this same class C morpheme is not perturbed when preceding a syllable of tone /²/ if the suffix is added to a tone /³/, class A, stem. Preceding zero: ǰyi³lo³? (class A and C) *you water* (*something*), či¹lo³? (class A and C) *you will water* (*something*). Preceding a tone /²/: ǰyi³lo³? le²? *you* (sing., with subject pronoun) *water* (*something*), či¹lo³? le²? *you* (sing., with subject pronoun) *will water* (*something*).

3.2. With the exception of those tone /²/ syllables which are always preceded by an innately tone /¹/ syllable, any tone /²/ syllable may be perturbed to tone /¹/.[6] Whether or not the tone /²/ syllable is perturbed in a particular instance depends upon whether or not it is (a) preceding zero, (b) immediately

[6] With some speakers, a monosyllabic word of tone /²/, when preceding a syllable of tone /²/ or tone /¹/, is perturbed to a glide from tone /²/ to tone /¹/: ʒi²n? *nose*, ʒi²⁻¹n? nga³ *this nose.* With these same speakers, a monosyllabic word of tone /²/ which ends in anything but a vowel, n, or glottal stop is perturbed to a glide from tone /²/ to tone /¹/: wi² *orange*, wi¹ ko¹bī² *new orange;* ʒi²s *stick*, ʒi²⁻¹s ko¹bī² *new stick.*

preceded by a tone /¹/, (c) at the end of the word.

A tone /²/ syllable is perturbed only by that which follows it; that is, it is not perturbed preceding zero. For example, ² + ² > ¹²: ẓi²s *stick* + ẓe²n *big* > ẓi¹s ẓe²n *big stick*. Perturbation of tone /²/ is conditioned only by the syllable of the following word, never by the syllable of the same word. Contrast ² + ² + ² > ²¹² with ² + ²² > ¹²²: ẓi²s *stick* + ẓe²n *big* + ni²ʔ *that* > ẓi²s ẓe¹n ni²ʔ *that big stick*, but ẓi²s *stick* + go²lī² *old* > ẓi¹s go²lī² *old stick*. A tone /²/ syllable is not perturbed if there is a tone /¹/ syllable immediately preceding it, even though that tone /¹/ syllable is part of the preceding word. For example, ¹ + ² + ² > ¹²²: ye¹ʀ *stone* + ẓe²n *big* + ni²ʔ *that* > ye¹ʀ ẓe²n ni²ʔ *that big stone*.

A tone /²/ syllable does not condition the perturbation of a sequence of tone /²/ syllables, but only the tone /²/ syllable immediately preceding it. Thus, ²² + ² > ²¹²: g^{w}a²gī² *firewood* + ni²ʔ *that* > g^{w}a²gī¹ ni²ʔ *that firewood*.

A tone /³/ syllable conditions the same types of perturbations of a preceding tone /²/ syllable as those conditioned by the tone /³/ just described. That is, ² + ³ > ¹³: ẓi²s *stick* + nga³ *this* > ẓi¹s nga³ *this stick*; ²² + ³ > ²¹³: g^{w}a²gī² *firewood* + nga³ *this* > g^{w}a²gī¹ nga³ *this firewood*.

The tone /¹/ syllable conditions a more extensive perturbation of the tone /²/ syllables. A tone /¹/ syllable conditions a sequence of preceding innate tone /²/ syllables to become tone /¹/. ²² + ¹ > ¹¹¹: čo²pī² *two* + go¹ *potatoes* > čo¹pī¹ go¹ *two potatoes;* ² + ²² + 1 > ¹¹¹¹: na²j *and* + čo²pī² *two* + go¹ *potatoes* > na¹j co¹pī¹ go¹ *and two potatoes*.

3.3. The innately tone /¹/ syllable is perturbed only rarely,[7] i.e. only in certain compounds. The second member of a compound is perturbed from tone /¹/ to tone /²/ if the first member of the compound is also tone /¹/. ¹ + ¹ > ¹² (in compound): ẓa¹ *skin* + go¹ *potato* > ẓa¹go² *potato skin*. If the first member of the compound is innately tone /³/, class A, the second member, tone /¹/, is perturbed to tone /²/. ³(A) + ¹ > ³² (in compound): de³- (nominalizer, class A) + zi¹ẓ *sweet* > de³zi²ẓ *a sweet*. If the first member of the compound is tone /³/ (class B) it is perturbed to tone /²/, and the second syllable, tone /¹/, is also perturbed to tone /³/. ³(B) + ¹ > ²³ (in compound): ni³s (class B) *water* + yi¹ʔ *fire* > ni²syi²ʔ *kerosene*.

An innately tone /¹/ morpheme which has become tone /²/ in compound is perturbed to tone /¹/ again, according to the same rules that govern the perturbation of an innate tone /²/. ³(B) + ¹ > ²³ (in compound); in turn this ²³ + ³ > ²¹³: ni³s (class B) *water* + yi¹ʔ *fire* > ni²syi²ʔ *kerosene* + nga³ *this* > ni²syi¹ʔ nga³ *this kerosene*.

3.4. All these perturbations are regressive. A tone /³/ when perturbed to tone /²/ then conditions perturbations the same way an innate tone /²/ would have done. But a tone /²/, once perturbed to /¹/, loses its power to condition a preceding tone /²/ to be perturbed; it will however still condition a preceding tone /³/ of class B to be perturbed. For example, ² + ² + ²² > ²¹²²: ẓi²d *cat* + ẓe²n *big* + go²lī² *old* > ẓi²d ẓe¹n go²lī² *big old cat*; ² + ²² + ² > ¹²¹²: ẓi²d *cat* + go²lī² *old* +ẓe²n *big* > ẓi¹d go²lī¹ ẓe²n *old big cat*.

These are the perturbations which eliminate nine of the 24 potential contrastive sets of words of two syllables (see **2.1**), and 32 of the 108 potential contrastive sets of words of three syllables (see **2.2**), and which in the initial investigation tend to obscure the innate tone of the individual morphemes.

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[7] Adjectives of one syllable with an innate tone glide of tone /¹⁻²/ at times are changed to tone /²/. This may prove to be an alternation of the prosodic phonemes, but should be checked for further perturbation rules.

With some speakers, a word of tone /¹/ ending in a vowel or glottal stop, preceding a word of tone /²/ or tone /³/, is perturbed from tone /¹/ and becomes a glide from tone /¹/ to tone /²/: ẓa¹ *clothes*, ẓa¹⁻² nga³ *these clothes*.

4. The problem of non-phonemic vowel length[8] has a vital effect upon tone analysis. There is a tendency for a vowel with a tone /¹/ to have a slightly shorter allophone than does a vowel with tones /²/ or /³/. This is especially true in monosyllables preceding zero, and preceded by a syllable of tone /³/: ge³yī³? ya³ *five weapons*, ge³yī³? ya² *five steambaths*, ge³yī³? ya¹ *five bamboo*. In this position, the length differential between a vowel with tone /¹/ and a vowel with tone /²/ tends to be more prominent than the pitch differential.[9] That is to say, the phonemic contrast between tone /¹/ and tone /²/ of monosyllables is retained when in this position, but tends to be accompanied by a more striking difference between short and long, sharp attack and easy attack. When, however, the same words occur in other positions, the basic tone contrasts reappear.

Elsewhere there is no persistent difference of length. Any apparent difference is non-phonemic and can for practical purposes be ignored. Long and short varieties of vowels tend to interchange freely, or the long ones are limited to positions where a short-long contrast does not exist, but the pitch differential is clearly and persistently present.

Considerable non-phonemic variation of the length of vowels occurs in other positions. These tendencies are not rigidly fixed, but are useful in explaining puzzling differences which at first may appear phonemic even though semantic contrasts cannot be found.

Some of the conditions where length most frequently, but optionally, occurs are: Vowels are frequently long when preceding fortis or lenis nasals and laterals, or when preceding other lenis consonants: ɟo¹ʐkle²n *thank* : bze¹⁻²be² *last*. Vowels toward the front of a long word are frequently shorter than vowels in the last two syllables of a word or phrase: ʀe¹ne²žʀʷa?a²ne²? *I went to give him* : ye³ʀʷbe³? *rainfall*. The stem vowel of a monosyllabic stem at times may be longer than other vowels of the word: ʐya¹ga³? *my tree*. Also, vowels may be lengthened under emphasis, or in slow pronunciation. The vowel /ī/ is probably the shortest of all vowels, and the vowel /a/ seems to be the longest: bo²za² *mulberry*, ʐwa²gī² *jar*.

5. A further problem is that of non-phonemic tone variation. There is a tendency

[8] Morris Swadesh, in an unpublished manuscript, describes vowel length in several of the dialects of Zapoteco as being non-phonemic: "Cuando un fonetista, entrenando para distinguir vocales largas y cortas, como las que caracterizan el alemán o el mexicano, escucha el habla de los zapotecos, observa muchas vocales largas, pero se puede demostrar que la duración vocálica no tiene significación especial en estos idiomas. La vocal tiene a ser corta ante el saltillo (que se escribe ?) y ante las consonantes fuertes (p t ɬ č k s š ş), mientras que ante las demás consonantes y, en menor grado, al final de las palabras generalmente es larga. Ante grupos consonánticos, también puede abreviarse la vocal. Por otra parte, la sílaba acentuada alarga su vocal, sobre todo si se trata del tono bajo o ascendiente en una palabra monosilábica. Las sílabas no acentuadas generalmente son muy breves."

[9] Note an analogous situation in English, where voiceless and voiced contrast between consonants is phonemic and length of vowel is not phonemic. But in some syntactic positions, such as phrase final, this voiceless-voiced contrast of English stops may be very weak; nevertheless the phonemic contrast is retained in secondary characteristics, induced by the consonant in the length of preceding vowels. When the voiced and voiceless contrast of the English stops lessens, the differences of the preceding vowel supply the clues for the differences of phonemic contrast. Compare [kæt] *cat* and [kæ·d] *cad*. In a phonemic orthography, however, one still writes /kæt/ and /kæd/, and ignores the clues obtained from the vowels. So in Zapotec, in the instances mentioned, one writes ya¹ *bamboo* and ya² *sweatbath*, even though the clue of length for monosyllables is easier to hear in that one particular syntactic position, phrase finally following a tone /³/, than is the minute pitch difference in that position.

In English, a change of position will bring out the more normal contrast of voiceless to voiced. Compare /bæt boy/ and /bæd boy/. So for Zapotec the pitch difference between the tone /²/ and the tone /¹/ becomes very clear phrase finally, if it is preceded by a tone /¹/: de³za¹n ya¹ *much bamboo;* de³za¹n ya² *many sweatbaths;* de³za¹n ya³ *many weapons*.

for the pitch to rise before fortis consonants and before a glottal stop. This tendency is most prominent before glottal stop at the end of a word of the tone-sequence pattern (³ ³), as in ba³dī³ʔ *tumpline*, in which the pitch of the second syllable is higher than the pitch of the first. This interval between the normal tone /³/ and the raised tone /³/ is slight. However, the interval between the phonemic tone /¹/ and the phonemic tone /²/ is also slight. This tends to confuse the initial investigation.

In fact, in the beginning I wrote three registers, but after further study heard the two low pitches and so began writing with four registers. Still further study proved that the higher of the two low pitches was conditioned and therefore non-phonemic. My next hypothesis was: if the two lower pitches have proved to be phonemically one, then the two upper pitches might also prove to be phonemically one. Therefore, I began writing with only two tone registers. However, no conditioning factors could be discovered for uniting the two upper pitches and the decision as to whether the lower of the two should be written as low tone or as high tone was frequently arbitrary. Therefore I resumed writing with three registers and subsequently, with the contrastive sets which ultimately began to appear, was able to prove them phonemic. Had these sets been more frequent, probably this time of confusion would have been lessened.

6. Another problem is caused by the free alternation between the phonemic pitches of certain morphemes. The investigator may hear the sequence (¹ ²), only to hear it the next time as (² ²). In these instances the informant is conscious of his change of pronunciation, and may use first one alternant and then the other. A few of these alternate pronunciations are as follows: zo³zi³l ~ zo¹zi³l *the east*, si¹⁻²l ~ si³l *the morning*, ga²⁻¹n ~ ga¹⁻²n *where*, ʒgʷi²boʔ² ~ ʒgʷi¹boʔ² *his*(fam.) *orange*, ʂa²le² ~ ʂa¹le² *your* (pl.) *father*, ži³nla¹⁻²zboʔ² ~ ži¹⁻²nla¹zboʔ² *his* (fam.) *breakable things*.

7. There is a problem of pitch glides. These quick, short glides are hard to hear but are phonemic and must be analyzed. Glides from tone /¹/ to tone /²/ are frequent and may occur either on monosyllables composed of one morpheme, or monosyllables composed of two morphemes: be¹⁻²L *fish*, yi¹⁻²ʒ *corn fodder*, ʒe¹⁻²ʔ *his clothing*. This glide contrasts with a glide from tone /¹/ to tone /³/, which occurs only on syllables which are composed of two morphemes. Contrast with the preceding examples such forms as: ʒa¹⁻³b *his* (animal's) *clothing*, jo?a¹⁻³n *his* (devil's) *mouth*. The glide from tone /²/ to tone /³/ also occurs between two morphemes, but not on a single morpheme: ga²kī²⁻³b *he* (animal) *will be able*.

Another glide which occurs on single morphemes is that from tone /²/ to tone /¹/: ba²⁻¹t *when*, ǰta²⁻¹se²ʔ *he sleeps*. This contrasts with the glide from tone /³/ to tone /²/, which occurs only on syllables which are composed of two morphemes: ʒse³⁻²ʔ *his beans*, Le?e³⁻² *his stomach*.

8. Certain practical suggestions arising from the preceding analysis are now presented. These have been of specific usefulness to colleagues studying Zapotec for the purposes of communication. This application, especially that of frames in **8.3,** may also serve to suggest a general technique for the application of structural tone analyses to the practical necessities of learning and teaching tone languages.

If the person learning Zapotec keeps in mind the distribution of the tone-sequence patterns, and the positions in which one tone causes another tone to be perturbed, he hears and writes those tones more easily. This is due to (1) restricted patterns to listen for, (2) recognition of innate forms, (3) useful frames for classification.

8.1. In checking new words, if one remembers that only /¹/, /²/, /³/, /¹⁻²/, and /²⁻¹/ occur on morphemes of one syllable, he will work that much more rapidly since he will not need to try to differentiate between them and other types.

Similarly, he will remember that there are no innate tone-sequence patterns of ¹ ¹,² ¹, or ³ ¹. He will not need to look for them in phrase final position. The three patterns do occur, however, as perturbed forms in some other circumstances.

8.2. One may recognize the tone of the innate forms by noticing the tone of that form as it appears in phrase final position, i.e. when preceding zero. The innate tone of any morpheme is the tone of that morpheme when it precedes zero.

He may also recognize the innate tone of noun or verb stems by comparing the tone of the stem with the tone of the personal enclitics which are attached to those stems. Because he knows that tone /²/ may not be perturbed by a syllable within the word, he knows that neither a tone /²/ stem (nor a tone /¹/ stem) have been perturbed by these personal enclitics. Therefore, a tone /³/, class A, stem will not be perturbed by the personal enclitic, but a tone /³/, class B, stem may be perturbed. Except for those morphemes of tone /³/, class B, whatever is the tone of the stem when preceding the personal enclitic, that is the innate tone of the stem.

8.3. Certain words are especially useful as frames[10] for classification of other words. They help in recognizing, not only the innate tone, but also the tone to which the form has been perturbed.

Numerals and certain words of measure make good frames in Zapotec, in that they precede the word being tested and therefore do not cause it to be perturbed. Examples of these frames are now shown.

ge³yï³? . . .ˣ (in which . . .ˣ indicates a word with an unknown tone /ˣ/) *five* . . . This frame is tone /³/, class A, and cannot be perturbed. Anything on a level with it is therefore tone /³/ also; anything higher than this frame is tone /²/ or tone /¹/.

za¹n . . .ˣ *much* . . . or *many* . . . This word, although innately tone /²/, is perturbed to tone /¹/ before another word, and therefore serves as a frame of tone /¹/. Any syllable following it, which is on a level with it, is therefore tone /¹/.

to³ . . .³ or to² . . .²/¹ *one* . . . This word, innately tone /³/, class B, is perturbed to tone /²/ when preceding a tone /²/ or tone /¹/. This frame must be used with caution. If the syllable following to³ *one* (or its alternant to²) is on a level with it, that syllable may be either tone /³/ or /²/. If it is /³/, the to³ *one* simply retains its innate tone /³/. If it is /²/, the to³ *one* is perturbed to tone /²/. If, however, the syllable following to³ *one* is higher than to³ *one*, that second syllable must be tone /¹/, not tone /²/, because if it were tone /²/ the to³ *one* would be perturbed to tone /²/ as in the case just given. Therefore, to³ *one* is useful in distinguishing a tone /²/ from a tone /¹/, but not in distinguishing a tone /²/ from a tone /³/. (Occa-

[10] A "frame" is the part in a syntactic or morphological construction which remains unchanged while the remaining part of that construction is removed, and one by one other items are substituted for it. For further discussion of this procedure, see Kenneth L. Pike, Tone Languages (Glendale: Summer Institute of Linguistics, 1945), 36–58. This procedure has proved extremely valuable in the determining of phonemic registers, as well as in the proof of those registers. Note, for example, the tonal description achieved in part by these techniques in K. L. Pike and E. V. Pike, Immediate Constituents of Mazateco Syllables, IJAL 13.78–91 (1947).

K. L. Pike, however, had not dealt with a language in which the tone perturbations drastically limited the symmetrical system, even though hints to it may be found on pages 68–71 of his Tone Languages. The present paper carries his technique further, to apply toward problems which he had not faced on a large scale.

sionally to^{3} *one* will be perturbed all the way to tone /^{1}/. This probably happens when it compounds to the following form, as in to^{1}čo^{1}pī^{1} go^{1} *a few potatoes.*)

čo^{2}pī^{1} . . .$^{2/3}$ *two* . . .; or čo^{1}pī^{1} . . .^{1} *two* . . . This is a dissyllabic frame with the innate tone $^{2\,2}$ (as found preceding zero), and is therefore very useful in distinguishing a tone /^{2}/ from a tone /^{1}/. When checking, one listens to the pitch of the frame. If the tones of the two frame syllables are identical (i.e., čo^{1}pī^{1}) then the following syllable (that one being tested) is tone /^{1}/. If the second syllable of the frame is higher than the first (i.e., čo^{2}pī^{1}) then the following syllable (that one being tested) is tone /^{2}/ or tone /^{3}/.

Adjectives or demonstratives make good frames to follow the word being tested. In this case, the frame itself will not be perturbed (if it precedes zero), but the frame may cause the perturbation of the word being tested. Nevertheless, if the rules for these perturbations are known, they help rather than hinder the classification of tone. Examples of adjective and demonstrative frames are now shown.

. . .^{x} nga^{3} . . . *this.* Any syllable preceding this frame, and level with it, is tone /^{3}/: . . .^{3} nga^{3}. A word with innate tone-sequence $^{2\,2}$ when checked with this frame is perturbed to $^{2\,1}$: . .^{2} . .^{1} nga^{3}. A word with innate tone-sequence $^{1\,2}$ when checked with this frame is not perturbed. The sequence remains $^{1\,2\,3}$: . .^{1} . .^{2} nga^{3}.

. . .^{x} go^{2}lī^{2} . . . *old.* Any syllable preceding this frame, and level with it, is a perturbed tone /^{3}/, class B. (A tone /^{2}/ syllable would have been perturbed up to tone /^{1}/ by this frame. The only exception is that a tone /^{2}/ in the tone-sequence $^{1\,2}$ would not have been perturbed.) Any syllable lower than this frame is a non-perturbable tone /^{3}/, class A. A syllable higher than this frame may prove to be either an innate tone /^{1}/, or a tone /^{1}/ resultant from a perturbed tone /^{2}/. Possible combinations: . . .^{2} (perturbed tone /^{3}/, class B) go^{2}lī^{2}, . . .^{3} (innate tone /^{3}/, class A) go^{2}lī^{2}, . . .^{1} (perturbed tone /^{2}/) go^{2}lī^{2}, . . .^{1} (innate tone /^{1}/) go^{2}lī^{2}.

. . .^{x} ko^{1}bī^{2} . . . *new.* This frame causes the perturbation of a preceding tone /^{2}/ syllable to tone /^{1}/, and of a tone /^{3}/, class B, to tone /^{2}/. It also causes the perturbation of a preceding $^{2\,2}$ tone pattern to a $^{1\,1}$ pattern.

KUTENAI III: MORPHEME DISTRIBUTIONS (PREFIX, THEME, SUFFIX)

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I. TYPES OF MORPHEMES

1. Kutenai utterances consist of one or more words occurring in potentially free relative order. Certain types of relative order are preferred but not obligatory—other types of relative order occur and are often used for special effect: n?inne· kusta·tá . . . *Christopher was . . .* (preferred word order), kusta·tá n?inne· *it was Christopher* (special effect).

Words may consist of one or more morphemes: ?inco·k? *mouse*, qo· *that*; ✻-łu?-ne· *there isn't any*. The criterion for the inclusion of more than one morpheme in one word is relative order: the order of words within a word is fixed; word boundaries are set up between morphemes with free relative order. This criterion becomes important when contour boundaries[1] and word boundaries do not coincide, i. e., where a contour contains more than one word. In these cases, monosyllabic and nonsyllabic morphemes and morpheme sequences occurring in the same contour with polysyllabic words are considered separate words if their order of occurrence with regard to each other and with regard to the polysyllabic word is free: pał n?inse· *indeed he was*, ?at'un?e·kułne· *I do drink*, pał ?at kyunatła *there were many tents indeed* B 74.34,[2] ?at pał kqakisq?anminuqło· *the two of them were white on each side* B 80.181, cin ma·k? n?inqaptakse· *there were only bones left* B 64.92, cin ?inqaptakse· ma·k?e·s *left were only his bones* B 82.10.

2. Polymorphemic words consist of a word nucleus (theme, marked X, Y, W, according to distribution type) of one or more morphemes, to which may be added one or more marginal and next-to-marginal morphemes (prefixes and suffixes, marked by morphological index numbers) in fixed relative order: hu-qatałcxa-nała?-ne· (111, X, 1151.1, 1111.1) *we couldn't speak*, ?ał-ka-a·qałt-ała (41, 51, Y, 1151.2) *our children*, ?a·qat?a·k-s (W, 1132) *nearby*.

Morphemes which alone or paired with a class marker constitute themes or words are classed as stems (marked x, y, z, w, v, u, t, according to distribution type): hu-q?umne·-nała?-ne· (111, x, 1151.1, 1111.1) *we slept*, ka-pałke·-nała (51, y, 1151.1) *our woman*, ?a·k-łat? (class marker, z) *foreleg*, na-?s (w, 1132) *here*, pał (v) indeed, q?ape·-s (u, 1132) *all* (*obv.*), huyas (t) *let's!*

II. MORPHEMES IN SEQUENCE WITH THEMES

Morphemes in sequence with themes are prefixes of classes 00, 100, and suffixes of class 1100. They are listed below by decade classes.

Prefixes

Decade Class		In sequence with themes X only, unless otherwise stated below
10	11: xma-, indefinitizer	
	12: ma-, emphasizer	
40	41: ?ał-, plural	Y
50	51: -ka-, first person owner	Y
	101: -k- ∼ -ki- ∼ -kē?-, interrogative; subject marker	
110	111: -hu-, first person actor	
	112: -hin-, second person actor	
	113: -✻-, third person actor	
120	121: -n-, predicate marker	
	122: -ł- ∼ -łi- ∼ -łi?-, optative, unreal	
	123: -łin-, suppositional	
130	131: -c- ∼ -cxa?ł-, future	
	132: -qākił-, remote past	

[1] Kutenai I: Phonemics, IJAL 14.37–8 (1948).

[2] These abbreviations refer to page and line number in Franz Boas, Kutenai Tales, BAE-B 59 (Washington, 1918).

Decade Class		In sequence with themes X only, unless otherwise stated below
140	141: -sɬ-, durative	
	142: UK -ʔupskiɬ-, LK -ʔipskiɬ-, continuative	
	143: UK -ʔo·psɬ-, LK -ʔipsɬ-, additive	
150	151: -łā-, repetitive, reversive	
160	161: -yā-, nominalizer I	
	162: -yi-, nominalizer II	
170	171: -qāpsiɬ-, explicative	
	172: -kiɬ-, nominalizer extension	
180	181: -ʔa·-, definitive interrogative	

Suffixes

Decade Class		In sequence with themes X only, unless otherwise stated below
1110	1111.1: -ne·, 1111.2: -e·, indicative	
	1112: -ke·, nominal	
	1113: (-ēn ~ -n) ~ -m, singular imperative	
	1114.3: -nō, 1114.4: -ō ~ -un, singular imperative with first person object	
1120	1121: -ki:ɬ-, pluralizer for second person; plural imperative	X, Y
1130	1131: -mi:ɬ-, obviative for first and second person	X, Y
	1132: -s- ~ -i:s- ~ -ʔs, obviative for third person and first person plural	X, Y, W
1140	1141: (-iɬ- ~ -ɬ-) ~ -tiɬ- ~ (iɬ ... -iɬ- ~ -tiɬ- ... -iɬ-), passive	
1150	1151.1: -naɬaʔ- ~ -naɬaʔ-, 1152.2: ~ -aɬaʔ- ~ -aɬaʔ-, pluralizer for first person	X, Y
	1152.1: -nam-, 1152.2: -am- ~ -u:m-, indefinite actor, indefinite owner	X, Y
	1153.3: -nawa:s-, 1153.4: -awa:s-, first person plural object; plural for first person plus second person object	
	1154.3: -na:p-, 1154.4: -a:p-, first person singular object	
	1155.3: -ni:s-, 1155.4: -i:s-, second person object; second person owner	X, Y
	1156.3: -na:ps-, 1156.4: -a:ps-, passive for third person with actor's instrumental (done by)	
	1157: -ʔi:s-, third person owner	Y
1160	1161.3: -nam-, 1161.4: -am, mutual	
	1162: -kaʔ-, animate object	
1170	1171.1: -naʔt-, 1171.2: -aʔt-, direct object	
	1172: -ciʔt-, causative; causative imperative singular	
	1173: -ciʔ-, passive causative	
	1174: -maɬ-, 1174.1: -naɬ-, 1174.2: -aɬ-, comitative (with)	X, Y
	1175: -s-, benefited object	
	1176: -tmō-, inclusive comitative (together with)	Y
1180	1181: -mu:- ~ -mumu-, instrumental	
	1182: -k-, reflexive	X, Y
1190	1191.3: -mē- ~ -ne·- ~ -niy- ~ -na- ~ -niyi-, 1191.4: -ē- ~ -e·- ~ -iy- ~ -a- ~ -iyi-, reflexivizer I	X, Y
	1192.3: -niłē ~ -ne·- ~ -niy- ~ -ni-, 1192.4: -iłē- ~ -e·- ~ -iy- ~ -i-, reflexivizer II	
	1193: (-ikc- ~ -kc-) ~ (-iki:c- ~ -ki:c-), indirect object	

Prefixes 00, 100 precede themes, suffixes 1100 follow themes. The relative order of morphemes in sequence with themes is fixed.

Prefixes 0, 100 occur in the numerical order of their decade classes: prefix of class 10 precedes prefix 101, prefix 101 precedes prefix of class 110, prefix of class 110 precedes prefix of class 120, prefix of class 120 precedes prefix of class 130, and so on; likewise, prefix 41 precedes prefix 51: ma-k-*-cxaʔɬ-wa·-s (12,

101, 113, 131, X, 1132) *they who will come (obv.)*, ʔał-ka-ʔa·qałt (41, 51, Y) *my children.*

Suffixes 1100 occur in the reverse numerical order of their decade classes: suffix of class 1110 follows suffix 1121, suffix 1121 follows suffix of class 1130, suffix of class 1130 follows suffix 1141, and so on: ✱-ʔitqanam-nał-ił-ne· (113, X, 1174.1, 1141, 1111.1) *they went away with him*, hu-c-ya-qanax-ała?-is-ke· (111, 131, 161, X, 1151.2, 1132, 1112) *where we are going to go.*

Another criterion of the decade class is that for prefixes 00, 100, and suffixes 1110–1180, morphemes of the same decade class are mutually exclusive. Decade suffix class 1190 has special characteristics which will be discussed further below.

We treat morphemes in sequence with themes by decade classes.

A. Prefixes

Prefix Class 10

Prefixes of class 10 are

11: xma-, indefinitizer

12: ma-, emphasizer

Prefixes of class 10 occur word-initially in sequence before themes X. In these sequences, prefixes of class 10 are obligatorily paired with a prefix of class 110; conversely, prefixes of class 10 are mutually exclusive with prefix 123 and suffixes 1113, 1114.

Sequences in which prefixes of class 10 occur are of the type 10, ± 101, 110, ± 121 *or* 122, ± other prefixes, X, ± suffixes: xma-k-in-qsa-mu-nał-ap (11, 101, 112, X, 1181, 1174.1, 1154.4) *can you help me?*, xm-o·-ła-c?ɬnax-ała?-ne· (11, 111, 151, X, 1151.2, 1111.1, style II LK; style I: xma-hu- ...) *it's time for us to go again*; ma-k-✱-cxaʔɬ-wa·-s (12, 101, 113, 131, X, 1132) *they who will come (obv.)*, ma-✱-ya-qawickpame·-ke· (12, 113, 161, X_r, 1112) *his waiting for it.*

Prefix 41: ʔał-, plural

Prefix 41 occurs word-initially in sequence before themes Y. Sequences in which prefix 41 occurs are of the types 41, 51, Y, ± 1151, ± 1130; 41, Y, 1155.3, ± 1131, ± 1121; 41, Y, 1157, ± 1132; 41, Y, 1176: ʔał-ka-swo· (41, 51, Y_k) *my friends*, ʔał-ka-a·knik?-nała?-e·s (41, 51, Y_k, 1151.1, 1132) *our parents* B 128.57,[2] ʔał-a·knik?-ne·s (41, Y_k, 1155.3) *your parents* B 20.11, B 42.9, B 90.43, B 96.188, ʔał-haca-nis-ke·ɬ (41, Y_k, 1155.3, 1121) *your uncles*, ʔał-qas-ʔis (41, Y, 1157) *his brains*, ʔał-tiłnamu-ʔis-e·s (41, Y, 1157, 1132) *his wives (obv.)*, ʔał-ała-tmu (41, Y_k, 1176) *girl friends together.*

Prefix 51: -ka-, first person owner

Prefix 51 occurs word-initially in sequence with all themes Y; in sequence with certain themes Y it also occurs word medially after prefix 41 (see prefix 41). Sequences in which prefix 51 occurs are of the types ± 41, 51, Y, ± 1151, ± 1130; 51, Y, 1191, 1151, ± 1130; 51, Y, 1191, 1182; 51, Y, 1174, ± 1151: ka-xa·łcin (51, Y) *my dog*, ka-a·kitła-nała (51, Y, 1151.1) *our house*, ka-swu-me·ɬ (51, Y_k, 1131) *my friend (obv.)*, ʔał-ka-ʔa·qałt (41, 51, Y) *my children*, ał-ka-ca (41, 51, Y_k) *my younger brothers*, ʔał-ka-a·knik?-nała?-e·s (41, 51, Y_k, 1151.1, 1132) *our parents (obv.)* B 128.57, ka-ʔa·ke·-nała?-is (51, Y_k, 1151.1, 1132) *our hands (obv.)*, ka-nasukinnint-iy-ała (51, Y, 1191.4, 1151.2) *our chiefs*, ka-nasukinniʔnt-i-k (51, Y, 1191.4, 1182) *my chiefs*, ka-titqatʔ-mał (51, Y, 1174) *I and another man*, ka-titqatʔ-mał-nała (51, Y, 1174, 1151.1) *we are all men.*

Prefix 101: -k- ∼ -ki- ∼ -kēʔ-, interrogative; subject marker

Prefix 101 occurs word-initially or after prefix of class 10 in sequence before themes X. Alternant -ki- appears before word-final monosyllable with initial ʔ; alternant -kēʔ- appears before other word-final monosyllable; alternant -k- appears in all other positions: ki-✱-ʔik *food*, kiʔ-✱-kqa·c *travelling*, ke·ʔ-✱-so·ʔk *good*, k-✱-sahan *bad.*

Prefix 101 is obligatorily paired with a prefix of class 110; conversely, it is mutually exclusive with prefixes 121, 123, 160, 170, and suffixes 1110.

Prefix 101 may therefore occur in sequences of the type ± 10, 101, 110, ± 122, ± 130–150, ± 180, X, ± 1190–1120: ma-k-u-cxał-cinkn-ała (12, 101, 111, 131, X, 1151.2) *we're trying to catch it*, k-u-ɬ-ła-łaxax-

ała· (101, 111, 122, 151, X, 1151.2) *we should go back*, k-∗-ʔàkaminkin-ł-is (101, 113, X, 1141, 1132) *it was put around it (obv.)*, k-∗-skałiykin-me·-k (101, 113, X, 1191.3, 1182) *one who had handled*, xma-k-∗-ła-qanałqʔ-iya·kqa·c (11, 101, 113, 151, X) *it was impossible for one to cross it*, k-u-cxał-là·-ʔitiknił̇e·-k (101, 111, 131, 151, X, 1192.4, 1182) *I'll put my snowshoes on again*, k-u-ł-qa·kił̇ukin (101, 111, 122, 132, X) *I must have taken it off*, ka?a k-in-ʔa·-qake· (w; 101, 112, 181, X) *what were you saying?*

Prefix Class 110

Prefixes of class 110 are

111: -ʜu-, first person
112: -ʜin-, second person
113: -∗-, third person

Prefixes 111, 112, 113 occur word-initially or word-medially in sequence with themes X alone, or in sequence with any possible combination of other prefixes and suffixes and themes X. Conversely, they are mutually exclusive with suffixes 1113, 1114.

Sequences in which prefixes of class 110 occur are of the type ± other prefixes, 110, ± other prefixes, X, ± suffixes: k-u-ʔi?tkin (10, 111, X) *I who am doing it*, k-in-qaʔupxa (101, 112, X) *don't you know?*, hu-ł-ʔakunxaʔm (111, 122, X) *I'd better pull*, ma-n-ʔas-kił-ne· (12, 112, X, 1121, 1111.1, style II; style I: ma-hin-) *the two of you were together*, xm-o·-n-ʔik-ne· (11, 111, 121, X, 1111.1, stylc II; style I: xma-hu-) *I could eat it*, m-o·-yi-snanukqanxuʔ-ke· (12, 111, 162, X, 11112, style II; style I: ma-hu) *where I turned back*, hu-cłakił̇-n'o·-łiʔ-kqa·c (111, X, 1111.1; 111, 122, X, style II; style I: -ne· hu-) *I like traveling*, xma-w-n-à·qanucinqa·c (11, 111, 121, X, style II; style I: xma-hu-) *I'd better go*, mà-w-xałtnaxaʔm-ke· (12, 111, X, 1112, style II; style I: ma-hu-) *I who just went in*, qałâqna'w-c-qànałucinqa·c-e· (v; 111, 131, X, 1111.2, style II; style I: qałaqna hu-) *I'll just go up*, xma-n-ya-qałʔitkin-kił̇-ke· (11, 112, 161, X, 1121, 1112, style II; style I; xma-hin-) *the way you (pl.) do it*, me·ka·'n-wiłke· (v; 112, X, style II; style I: me·ka· hin-) *even though you talk loud*, ʔat'u-n-ʔe·quł-ne· (v; 111, 121, X, 1111.1, style II; style I: ʔat hu-) *I do drink*, n'in-ʔumac-s-ap-ne· (w; 112, X, 1175, 1154.4, 1111.1, style II; style I: ne· hin-) *you make me laugh*, hu-łitqʔałamat-ikc-is-ne· (111, X, 1193, 1155.4, 1111.1) *I've never given it to you*, hin-cukat-s-awas-ne· (112, X, 1175, 1153.4, 1111.1) *you want us to take it*, hin-słà·tnaqa-niy-mił-kił-ne· (112, X, 1191.3, 1131, 1121, 1111.1) *you're still sitting (obv.)*, ∗-łin-c-sił-là-xanxu-naps-e· (113, 123, 131, 141, 151, X, 1156.3, 1111.2) *it almost caught up with him*, k-∗-ʔałe·-s (101, 113, X, 1132) *thick (obv.)*, ma-ki?-∗-cxa (12, 101, 113, X) *she did say*.

Prefix Class 120

Prefixes of class 120 are

121: -n-, predicate marker
122: -ł- ∼ -łi- ∼ -łiʔ-, optative, unreal
123: -łin-, suppositional

Prefixes of class 120 occur after prefixes of class 110 in sequence with themes X. They are obligatorily paired with a prefix of class 110. Other distributions are as follows:

Prefix 121 has limited distribution. It is found only after prefixes 111 and 113. After prefix 111 and medial prefix 113, prefix 121 occurs before all vowel- or ʔ-initial morphemes; after initial prefix 113, prefix 121 occurs before all vowel-initial morphemes, and optionally before ʔ-initial morphemes. Prefix 121 is mutually exclusive with prefix 101, suffixes 1113, 1114.

Sequences in which prefix 121 occurs are of the type ± 10, 111 *or* 113, 121, ± other prefixes, X, ± suffixes; qała· hi-∗-n-ʔin (w; hē, 113, 121, X) *who it is*, napit n'i-∗-n-ʔik (v; w; hē, 113, 121, X, style II; style I: . . . ne· hi-) *if he ate*,[3] hu-n-ʔukʔinax-e· (111, 121, X, 1111.2) *I went on the side*, hu-n-aʔt-e· (111, 121, X, 1111.2) *I have*, hu-n-ʔipskił-la-qawax-e· (111, 121, 141, 151, X, 1111.2) *I didn't come back yet*, ma-∗-n-ʔaqsa (12, 113, 121, X) *how many there were*, ∗-n-aqunqa-mi-k (112, 121, X, 1191.3, 1182) *he's sitting in the water*.

Prefix 122 is mutually exclusive with pre-

[3] See Kutenai II: Morpheme Variations, 4.5, IJAL 14.90 (1948).

fixes 160, 170, and suffixes 1110; sequences in which prefix 122 occurs are of the type ± 10, ± 101, 110, 122, ± 130–150, ± 181, X, ± 1190–1120. In these sequences, alternant -li- occurs before word-final monosyllables with initial ʔ; alternant -liʔ- occurs before other word-final monosyllables; alternant -ł- occurs in all other positions: # -liʔik-s (113, 122, X, 1121) *he should eat* (*obv.*), k-in-liʔ-wam (101, 112, 122, X) *would you come?*, hu-ł-qʔumne·-nała (111, 122, X, 1151.1) *we should sleep*, taq'u-ł-qakił-qake· (v; 111, 122, 132, X, style II; style I: tə·q hu- . . .) *had I only said it!*, hu-ł-cʔinaxałaʔ-e·s (111, 122, X, 1151.2, 1132) *we should go* (*obv.*), # -ł-sa·niłwiy (113, 122, X) *he would get mad*, k-u-ł-ʔic'kił-nała· (101, 111, 122, X, 1151.1) *we who should look.*

Prefix 123 obligatorily forms either a triad with a prefix of class 110 and one of suffixes 1111, 1182; or a foursome with a prefix of class 110, prefix 161, and suffix 1112; conversely, prefix 123 is mutually exclusive with prefix 10, 101. Prefix 123 may therefore occur in the following three types of sequences: 110, 123, ± 130–150, X, ± 1190–1120, 1111; 110, 123, ± 130–150, X, ± 1190, 1182; 110, 123, ± 130–150, 161, ± 170, X, ± 1190–1120, 1112: # -łin-c-qawałuqkukutne· (113, 123, 131, X, 1111.1) *it might not rain*, hu-łin-cxał-qaʔupx-ne· (111, 123, 131, X, 1111.1) *I don't think I'll know*; hu-łin-qʔakpami-k (111, 123, X_r, 1182) *I seem to have forgotten*; # -łin-ya·-kił-ʔitkin-ke· (113, 123, 161, 172, X, 1112) *it seems that's what he'll do.*

Prefix Class 130

Prefixes of class 130 are

131: -c- ~ -cxaʔł-, future

132: -qākił-, remote past

Prefixes of class 130 occur after prefix of class 110 ± prefix of class 120 in sequence before themes X. They are obligatorily paired with a prefix of class 110; conversely, they are mutually exclusive with suffixes 1113, 1114.

Alternants -c- and -cxaʔł- of prefix 131 are in free variation.

Sequences in which prefixes of class 130 occur are of the type ± 10, ± 101, 110, ± 120, 130, ± other prefixes, X, ± suffixes: qała·qna'w-c-qànałucinqa·c-e· (v; 111, 131, X, 1111.2, style II; style I: qała·qna hu- . . .) *I'll just go up*, # -łin-c-sił-łà-xanxu-naps-e· (113, 122, 131, 141, 151, X, 1156.3, 1111.2) *it almost caught up with him again*, ma-k- # -cxaʔł-wa·-s (12, 101, 113, 131, X, 1132) *they who will come* (*obv.*), hu-qa·kił-àlqʔałhuqʔuckne· (111, 132, X, 1111.1) *I was fighting fires, too*, c'u-qàkił-sil-ʔàqałcxa-nat-is-ne· (v; 111, 132, 141, X, 1171.1, 1155.4, 1111.1, style II; style I: c hu-) *and I didn't tell you anything about it*, # -qàkił-ya·-qà·kiłʔitkin-ke· (113, 132, 161, X, 1112) *where he was doing it.*

Prefix Class 140

Prefixes of class 140 are

141: -sił-, durative

142: UK -ʔupskił-, ŁK -ʔipskił-, continuative

143: UK -ʔo·psił-, LK -ʔipsił-, additive

Prefixes of class 140 occur after prefix of class 110 ± prefixes of classes 120, 130, in sequence before themes X. They are obligatorily paired with a prefix of class 110. Conversely, prefixes of class 140 are mutually exclusive with suffixes 1113, 1114.

Sequences in which prefixes of class 140 occur are of the type ± 10, ± 101, 110, ± 120, ± 130, 140, ± other prefixes, X, ± suffixes: hu-sił-kqa·c-mu-ne· (111, 141, X, 1181, 1111.1) *I drive* (*a car*), hu-łin-sł-ʔupił-e·-k (111, 123, 141, X, 1191.4, 1182) *I'm probably hurt*, pał # -c-sił-qahis-aps-e· (v; 113, 131, 141, X, 1156.4, 1111.2) *they wouldn't give him to eat*; # -n-ʔupskił-qałaxax-e· (113, 121, 142, X, 1111.2, UK) *it hadn't come up to it yet*, # -ʔipskił-ła-qawax-e· (113, 142, 151, X, 1111.2, LK) *he hasn't come back yet*; # -ʔo·psił-qawxałik-ne· (113, 143, X, 1111.1) *the track goes right through*, hu-n-ʔo·psł-ła-qanakuł-nałaʔ-ne· (113, 121, 143, 151, X, 1151.1, 1111.1) *we didn't put any more water in.*

Prefix 151: -łā-, repetitive, reversive

Prefix 151 occurs word-initially and word-medially in sequence before themes X. It is

obligatorily paired with either a prefix of class 110, or one of suffixes 1113, 1114.

Sequences in which prefix 151 occurs are of the following types: paired with a prefix of class 110— ± 10, ± 101, 110, ± 120–140, 151, ± other prefixes, X, ± suffixes; paired with suffix 1113— 151, X, ± 1191, 1113; 151, X, ± 1154, ± 1131, 1113; paired with suffix 1114— 151, X ± 1193 or 1174 or 1171, ± 1153, 1114: k-*-cxał-ła-qac?ina·k-s (101, 113, 131, 151, X 1132) *will he go slow again*, hu-ł-ła-c?inyaxa· (111, 122, 151, X) *I ought to go and get it*, pał *-sił-ła-qatał?uwuk-ne· (v; 113, 141, 151, X, 1111.1) *he couldn't get up*, ła-piskin-in (151, X, 1113) *let go of it again!*, la-?unanuxunmał-nawas-no· (151, X, 1153.3, 1114) *fly down with us again!* B 114.117.

Prefix Class 160

Prefixes of class 160 are

161: -yā-, nominalizer I

162: -yi-, nominalizer II

Prefixes of class 160 occur after prefix of class 110 ± other prefixes in sequence before themes X. They form obligatory triads with a prefix of class 110 and suffix 1112; conversely, prefixes of class 160 are mutually exclusive with prefixes 101, 122, 181, and suffixes 1112, 1113. Prefix 162 is furthermore mutually exclusive with prefix 170.

Prefix 161 may therefore occur in sequences of the type ± 10, 110, ± 121 *or* 123, ± 130–150, 161, ± 170, X, ± 1190–1120, 1112; prefix 162 occurs in sequences of the type ± 10, 110, ± 121 *or* 123, ± 130–150, 162, X, ± 1190–1120, 1112: hu-c-ya-qa·nitła-nała?-ke· (111, 131, 161, X, 1151.1, 1112) *where we are going to pitch a tent*, *-ya·-kił-?ituq?iłqà-kc-am-nam-is-ke· (113, 161, 172, X, 1193, 1161.4, 1152.1, 1132, 1112); m'o·-yi-snanukqanxu?k-e· (12, 111, 162, X, 1112, style II LK; style I: ma-hu-) *where I turned back last night*, *-yi-sinwunikit-ke· (131, 162, X, 1112) *that much time*.

Prefix Class 170

Prefixes of class 170 are

171: -qāpsił-, explicative

172: -kił-, nominalizer extension

Prefixes of class 170 occur word-medially in sequence before themes X. They are obligatorily paired with a prefix of class 110 and suffix 1112; prefix 172 is furthermore obligatorily paired with prefix 161. Prefix 171 also is frequently, but not obligatorily, paired with prefix 161.

Sequences in which prefix 171 occurs are of the type 110, ± 161, 171, X, ± 1190–1120, 1112; those in which prefix 172 occurs are of the type 110, 161, 172, X, ± 1190–1120, 1112: hu-qapsił-list-ke· (111, 171, X, 1112) *the reason I haven't*, hu-ya-qapsił-a?t-ke· (111, 161, 171, X, 1112) *the reason I have*, hu-ya-qa·psił-?umusam-ke· (111, 161, 171, X, 1112) *the reason I walk*, hu-ya·-qapsił-łàqo·qanam-ke· (111, 161, 171, X, 1112) *why I left*; *-ya·-kił-cikkuc?łanił-ił-ke· (113, 161, 172, X, 1141, 1112) *sawmill*, *-ya·-kił-?ituq?iłqà-kc-am-nam-ke· (113 161, 172, X, 1193, 1161.4, 1152.1, 1112) *school*, *-ya·-kił-?in-ke· (113, 161, 172, X, 1112) *where is*, m-o·-ya·kił-?upxałik-nała?-ke· (12, 111, 161, 172, X, 1151.1, 1112, style II; style I: ma-hu-) *where we had seen the tracks*, *-ya·-kił-?uquxaxa?m-nam-ke· (113, 161, 172, X, 1152.1, 1112) *railroad station*, *-ya·kił-kqanmitk?u?-ł-ke· (113, 161, 172, X, 1141, 1112) *poolroom*, *-ya·-kił-?ipił-am-nam-is-ke· (113, 161, 172, X, 1161.4, 1152.1, 1132, 1112) *where people killed each other*.

Prefix 181: -?a·-, definite interrogative

Prefix 181 occurs after ± 101, 110, ± other prefixes in sequence with themes X, whenever stem w ka?a ± suffix 1132, ± stem v, precede this sequence. Prefix 181 is obligatorily paired with a prefix of class 110; conversely, it is mutually exclusive with prefixes 121, 123, and with suffixes of class 1110. Sequences in which prefix 181 occurs are of the type w = ka?a, ± 1132; ± v; ± 101, 110, ± 122, ± 130–150, 181, X, ± suffixes: ka?a k-in-?a·-qake· (w; 101, 112, 181, X) *what were you saying?*, ka?-s k-in-qakił-?a·-qakił (w, 1132; 101, 112, 132, 181, X) *what did you say to him?*, ka?-s k-*-ła-?a·-

qanaq?ankimi-k (w, 1132; 101, 113, 151, 181, X_r, 1182) *which way did he walk?*, ka?a hu-ł-?a·-qał?itkin (w; 111, 122, 181, X) *what I should do about it*, ka?a ?at k-in-c-?a·-qał?upx-nam-kił (w; v; 101, 112, 131, 181, X, 1161.3, 1121) *how will you see each other?*, ka?-s ⁎-n-?a·-qał?it?namuctił-mu (w, 1132; 113, 121, 181, X, 1181) *whatever ruling he passes on.*

B. Suffixes

Suffix Class 1110

Suffixes of class 1110 are:

1111.1: -ne·, 1111.2: -e·, indicative

1112: -ke·, nominal

1113: (-ēn ∼ -n) ∼ -m, singular imperative

1114.3: -nō, 1114.3: -ō ∼ -un, singular imperative + 1st person object

Suffixes of class 1110 occur word-finally in sequence after themes X. Otherwise, their distribution differs as follows:

Suffixes 1111 and 1112 are obligatorily paired with a prefix of class 110. Prefix 1112 is furthermore frequently, but not obligatorily, paired with a prefix of class 160. Conversely, suffixes 1111 and 1112 are mutually exclusive with prefixes 101, 122, 181; suffix 1111 is furthermore mutually exclusive with prefixes of class 160, 170.

Suffix 1111 may occur in sequences of the type ± 10, 110, ± 121 *or* 123, ± 130–150, X, ± 1190–1120, 1111: hu-cxał-qaqałqàna-xała?-ne· (111, 131, X, 1151.2, 1111.1) *we'll keep on going*, ⁎-łin-qałławax-e· (113, 123, X, 1111.2) *he seems to come from there*, hu-n-?aqsanmit-e· (111, 121, X, 1111.2) *I throw it under the blanket.*

Suffix 1112 occurs in sequences of the type ± 10, 110, ± 121 *or* 123, ± 130–170, X, ± 1190, ± 1181, ± 1170–1120, 1112: ⁎-ya·-kił-?ipił-am-nam-is-ke· (113, 161, 172, X, 1161.3, 1152.1, 1121, 1112) *where they killed each other*, ⁎-cxał-yi-sił?asqawsałxu-naps-is-ke· (113, 131, 162, X, 1156.1, 1121, 1112) *how far apart they will be*, ma-w-xałtnaxa?m-ke· (12, 111, X, 1112, style II UK; style I: ma-hu . . .) *I, the one who just went in*, ?in ⁎-hakqa?-ke· (w; 113, X, 1112) *what lies here* B 102.332, ne· ⁎-hakłu?-ke· (w; 113, X, 1112) *the townspeople* B 70.11.

Suffixes 1113 and 1114 have limited distribution.

Suffix 1113 is found only in sequences of the types: ± 151, X, ± 1191, 1113; ± 151, X, ± 1154, 1131, 1113. In these sequences, alternant -m occurs after suffix 1191, alternant -n after other vowel-final morphemes, and alternant -ēn after consonant-final morphemes: ci?kat-a-m (X, 1191.4, 1113) *look at yourself!* B 188.31, ?isaknu-n (X, 1113) *sit down!* ła-piskin-in (151, X, 1113) *let go of it again!*, quna-mił-e·n (X, 1131, 1113) *go there!* (*obv.*) B 106.405, ?ałqana?nt-ap-mił-e·n (X, 1154.4, 1131, 1113) *take me across!* (*obv.*) B 228.87.

Suffix 1114 is found only in sequences of the type ± 151, X, ± 1193 *or* 1174, *or* 1171, ± 1153, 1114. Its alternants 1114.4 -ō and -un appear to be in free variation: piskin-u *or* piskin-un (X, 1114.4) *leave me alone!*, ?upł-o· (X, 1114.4) *kill me!* B 194.85, B 230.103, qsa-nał-u (X, 1174.1, 1114.4) *come with me!*, ła-?unanuxumał-nawas-no· (151, X, 1153.3, 1114.3) *fly down with us again!* B 114.117, hamat-ikc-u (X, 1193, 1114.4) *give me!* B 1.2, hawickpay-a?t-u (X_r, 1171.2, 1114.4) *wait for me.*

Suffix 1121: -ki:ł-, pluralizer for second person; plural imperative

Suffix 1121 occurs word-finally and word-medially before one of suffixes 1111, 1112 in sequence after themes X; it also occurs word-finally in sequence after themes Y.

In sequence after themes X, suffix 1121 marks plural for second person if a prefix of class 110 is included in the sequence; it marks plural imperative if no prefix of class 110 is present. Distributions differ considerably in both cases.

With prefix of class 110 included, suffix 1121 forms either an obligatory pair with prefix 112, or an obligatory triad with one of prefixes 111, 113, and suffix 1155; conversely, it is mutually exclusive with suffixes 1113, 1114, 1151, 1152, 1156, 1160, 1182. Prefix 1121 is here found in sequences of the types

± other prefixes, 112, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1153, *or* 1154 *or* 1141, ± 1131, 1121, ± 1111.1 *or* 1112; ± other prefixes, 111 *or* 113, ± other prefixes, X ± 1190, ± 1181, ± 1170, 1155, ± 1130, 1121, ± 1111.1 *or* 1112: xma-n-ya-qał?itkin-kił-ke· (11, 112, 161, X, 1121, 1112, style II; style I: xma-hin-) *the way you (pl.) are doing it*, hin-qanłałt-ił-kił-ne· (112, X, 1141, 1121, 1111.1) *you (pl.) are being beaten*, hu-n-?itkin-is-kił-ne· (111, 121, X, 1155.4, 1121, 1111.1) *I'm making you (pl.)*, ✻-suk-mu-nis-is-kił-ne· (113, X, 1155.3, 1132, 1121, 1111.1) *they are satisfied with you (pl.)*, hin-ła-?ukax-niy-kił-ne· (112, 151, X, 1191.3, 1121, 1111.1) *you (pl.) climbed down*.

With no prefix of class 110 present, suffix 1121 occurs in sequences of the type ± 151, X, ± 1193 *or* 1171, ± 1153 *or* 1154, ± 1131, 1121: cikat-ap-kił (X, 1154.4, 1121) *look (pl.) at me!* B 58.250, cxa-nat-ap-kił (X, 1171.1, 1154.4, 1121) *tell (pl.) me!* B 5.3, B 8.2, quna-mił-kił (X, 1131, 1121) *go (pl.) to him!* B 19.10, ?e·-ke·ł (X, 1121) *eat! (pl.)*, hałxo·-kc-ap-ke·ł (X, 1193, 1154.4, 1121) *carry (pl.) it for me*.

In sequence after themes Y, suffix 1121 is obligatorily paired with suffix 1155. Sequences in which it occurs are of the types ± 41, Y, ± 1191, 1155, ± 1131, 1121; Y, 1174, 1155, 1121: ?ał-haca-nis-ke·ł (41, Y_k, 1155.3, 1121) *your (pl.) uncles*, pałke·-nis-ke·ł (Y, 1155.3, 1121) *your (pl.) woman*, ?a·kise·-nis-ke·ł (Y_p, 1155.3, 1121) *both your (pl.) hands*, ?a·kitła-nis-mił-kił (Y_p, 1155.3, 1131, 1121) *your (pl.) house (obv.)*, ?a·kikł-iyi-nis-kił (Y_p, 1191.4, 1155.3, 1121) *your names*, titqat?-mał-nis-kił (Y, 1174, 1155.3, 1121) *you are all men*.

Suffix Class 1130

Suffixes of class 1130 are

1131: mi:ł-, obviative for first and second person

1132: -s- ~ -i:s- ~ -?s, obviative for third person and first person plural

Suffixes of class 1130 occur word-finally and word-medially before one or more suffixes of classes 1110, 1120, in sequence after themes X; suffix 1131 is also found word-finally, and word-medially before suffix 1121, in sequence after themes Y; suffix 1132 is also found word-finally in sequence after themes Y and W.

In sequence after themes X, suffix 1131 is obligatorily paired with any one of the following affixes: prefixes 111, 112, suffixes 1113, 1121. Conversely, suffix 1131 is mutually exclusive with suffixes 1152, 1156, 1160, 1182. Suffix 1131 occurs after suffix 1151 only if suffix 1141 is also included in the sequence.

Types of sequences in which suffix 1131 occurs after theme X are: ± other prefixes, 111, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1155 *or* 1153 *or* 1141, 1131, ± 1111.1 or 1112; ± other prefixes, 112, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1153–5 *or* 1141, 1131, ± 1121, ± 1111.1 *or* 1112; ± 151, X, ± 1154, 1131, 1112; ± 151, X, ± 1193 *or* 1171 ± 1153 *or* 1154, 1131, 1121; ± other prefixes, 111, ± other prefixes, X, ± 1190, ± 1181, ± 1170, 1151, 1141, 1131, ± 1111.1 *or* 1112: hu-c?ina-mił-ne· (111, X, 1131, 1111.1) *I went to him*, hu-cxał-sił-q?umne·-mił-ne· (111, 131, 141, X, 1131, 1111.1) *I'll be sleeping (obv.)*; hin-qałwiy-mił-ne· (112, X, 1131, 1111.1) *you think (obv.)*, hin-tkaxa?m-mił-kił-ne· (112, X, 1131, 1121, 1111.1) *you came in (obv.)*; ?aqsakaxa?m-mił-in (X, 1131, 1113) *come under the blanket (obv.)*, ?ałqana?nt-ap-mił-e·n (X, 1154.4, 1131, 1113) *take me across!* B 228.87; ?akakin-mił-kił (X, 1131, 1121) *take (pl.) them out!* B 234.87.

In sequence after themes Y prefix 1131 is obligatorily paired with either prefix 51 or suffix 1155.3. Sequences in which it occurs are of the types ± 41, 51, Y, ± 1191, 1131; ± 41, Y, ± 1191, 1155.3, 1131, ± 1121: ka-a·ke·-mił (51, Y_p, 1131) *my hand (obv.)*, ?ał-ka-swu-mił (41, 51, Y_k, 1131) *my friends (obv.)*, ka-tiłnamu?-mił (51, Y, 1131) *my wife (obv.)*, ?a·kitła-nis-mił (Y_p, 1155.3, 1131)

your (sg.) house (obv.), ʔa·kłatʔnis-mił-kił (Y, 1155.3, 1131, 1121) *your (pl.) arms (obv.)*.

In sequence after themes X, suffix 1132 obligatorily forms either a pair with prefix 113, or a triad with prefix 111 and suffix 1151. The triad prefix 111, suffix 1151, suffix 1132, is mutually exclusive with suffixes 1141 and 1121. Suffix 1132 may occur in sequences of the types ± other prefixes, 113, ±other prefixes, X, ± 1190–1160, ± one of suffixes 1152–6, 1132, ± 1121, ± 1111 *or* 1112; ± other prefixes, 113, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1141, 1132, ± 1111 *or* 1112; ± other prefixes, 111, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1160, 1151, 1132, ± 1111.1 *or* 1112. In these sequences, alternant -i: s- is found after morphemes ending in -s and in clusters with ł, c as last members, after suffixes of class 1150, and in final position also after suffix 1182; alternant -ʔs is sometimes found finally after vowel; alternant -s- is found in all other positions. In sequence before suffix 1111, -i: s- is followed by alternant 1111.1, -s- by alternant 1111.2: ✻-ʔitkin-ł-is-ne· (113, X, 1131, 1121, 1111.1) *it was made (obv.)*, hu-c-ya-qanax-ała?-is-ke· (111, 131, 161, X, 1151.2, 1132, 1112) *where we are going to go*, hu-ł-cʔinax-ała?-e·s, (111, 122, X, 1151.2, 1132) *let's get going*, k-✻-ł-sił-cink?apałti-k-e·s (101, 113, 122, 141, X_r, 1182, 1132) *he who should listen*, ✻-qà·cʔła·nxu-na-k-s-e· (113, X, 1191.3, 1182, 1132, 1111.2) *a tree was lying there (obv.)*, pàł ✻-sił-cink?u-s-e· (v; 113, 141, X, 1132, 1111.2) *they had got caught (obv.)* ✻-n-ʔin-s-e· (113, 121, X, 1132, 1111.2) *he was (obv.)*, ✻-n-ʔitkin-is-is-kił-ne (113, 121, X, 1155.4, 1132, 1121, 1111.1) *they are making you (pl.)* k-✻-skałʔuka-ʔs (101, 112, X, 1132) *coming down*.

After themes Y, suffix 1132 occurs in sequences of the following types: Y, 1132; ± 41, Y, ± 1191, 1157, 1132; ± 41, 51, Y, ± 1191, 1151, 1132. Alternant distribution is the same as in the sequences with themes X treated above: kławła-ʔs (Y, 1132) *grizzly bear (obv.)*, ʔaqłsmaknikʔ-s *Indian (obv.)*, ʔał-tilnamu-ʔis-e·s (41, Y, 1157, 1132) *his wives (obv.)*, ʔa·kmak-niyi-ʔis-is (Y_p, 1191.3, 1157, 1132) *its trail (obv.)*, ʔał-ka-a·knikʔ-nała?-e·s (41, 51, Y_k, 1151.1, 1132) *our parents (obv.)* B 128.57, ka-nasukinnint-iy-ała?-is (51, Y, 1191.4, 1151.2, 1132) *our chiefs (obv.)*.

After themes W, suffix 1132 occurs in sequences of the type W, 1132: qo·-ʔs (W, 1132) *there*, qayaqawo·-s (W, 1132) *half*, ʔiłnaha·k-s (W, 1132) *in the rear*.

Suffix 1141: (-ił- ~ -ł-) ~ -tił- ~ (-ił- .. -ił- ~ -tił- .. -ił-), passive

Suffix 1141 occurs word-finally or before suffixes of classes 1110–1130 in sequence with themes X. It obligatorily forms a pair with a prefix of class 110. Conversely, suffix 1141 is mutually exclusive with suffixes 1153–1156, those of class 1160, and suffix 1182. Suffix 1141 may therefore occur in sequences of the following type: ± other prefixes, 110, ± other prefixes, X, ± 1190, ± 1181, ± 1170, ± 1151 *or* 1152, 1141, ± 1130, ± 1121, ± 1111.1 *or* 1112. In these sequences, alternant -tił- occurs after suffix 1151; alternant -tił- .. -ił- occurs between suffixes 1151 and 1131 and after suffix 1131 (1151, -tił-, 1131, -ił-); alternant -ił- .. -ił- occurs before and after suffix 1131 in sequences not containing 1151; alternants -ił- and -ł- occur in all other sequences. Of the last two alternants, -ł- occurs adjacent to vowels, -ił- in other distributions.

Examples are: hu-qanałikx-nała-tił-ne· (111, X, 1151.1, 1141, 1111.1) *we were kicked*, m-o·-qakił-nała-tił-mił-ił-ne· (12, 111, X, 1151.1, 1141, 1131, 1141, 1111.1, style II; style I: ma-hu-) *we have been told (obv.)*, hu-n-ʔitkin-ił-mił-ił-ne· (111, 121, X, 1141, 1131, 1141, 1111.1) *I have been done (obv.)*, ✻-ʔitqanam-nał-iłne· (113, X, 1174.1, 1141, 1111.1) *they went away with him*, ✻-ʔakaminkin-ł-is-ne· (113, X, 1141, 1132, 1111.1) *it was put around it (obv.)*, k-✻-c-sukiłʔitkn-ikc-ił (101, 113, 131, X, 1193, 1141) *the good that will be done to them*, k-✻-cxał-ciʔkat-ił-ne· (101, 113, 131, X,

1141, 1111.1) *it will be sought,* ɸ-ɬa-wanułxaɬ-ne· (113, 151, X, 1141, 1111.1) *it was brought again.*

Suffix Class 1150

Suffixes of class 1150 are

1151.1: -nała?- ~ -nała?-, 1151.2 -ała?- ~ -ała?-, pluralizer for 1st person

1152.1: -nam-, 1152.2: -am- ~ -u:m-, indefinite actor; indefinite owner

1153.3: -nawa: s-, 1153.4: -awa: s-, first person plural object; pluralizer for first person plus second person object.

1154.3: -na: p-, 1154.4: -a: p-, first person singular object

1155.3: -ni: s-, 1155.4: -i: s-, second person object; second person owner

1156.3: -na: ps-, 1156.4: -a: ps-, passive of third person with definite actor

1157: -?i: s- ~ -i: s-, third person owner

Suffixes 1151, 1152, 1155 occur word-finally and word-medially after both themes X and Y; suffixes 1153, 1154, 1156 occur word-finally and word-medially after only themes X; suffix 1157 occurs word-finally and word-medially after only themes Y.

In sequence after themes X, suffix 1151 is obligatorily paired with prefix 111; conversely, suffix 1151 is mutually exclusive with suffixes 1113, 1114, 1121. Suffix 1151 is found in sequence with suffix 1131 only if suffix 1141 is also present. Sequences in which suffix 1151 occurs are therefore of the types: ± other prefixes, 111, ± other prefixes, X, ± 1190, ± 1180, ± 1170, ± 1160, 1151, ± 1132, ± 1111.1 *or* 1112; ± other prefixes, 111, ± other prefixes, X, ± 1190, ± 1180, ± 1170, 1151, 1141, ± 1131, ± 1111.1 *or* 1112. In these sequences, alternants 1151.1 -nała?-, 1151.2 -ała?- occur before suffix 1132, alternants 1151.1 -nała?-, 1151.2 -ała?- in all other positions: hu-cxałcukat-am-nała?-ne· (111, 131, X, 1161.3, 1151.1, 1111.1) *we shall be married,* hu-ɬq?umne·-nała (111, 122, X, 1151.1) *let us sleep,* hu-qałwìy-nat-ała?ne· (111, X, 1171.1, 1151.2, 1111.1) *we want him to,* hu-ɬac?ìnax-ała?-ne· (111, 151, 1151.2, 1111.1) *we started out again,* k-u-ɬa-xa?nxu-nała· (101, 111, 151, X, 1151.1) (*we*) *getting up to it again,* hu-ya-qawxałłaxał?upx-nała?-ke· (111, 161, X, 1151.1, 1112) *the way we saw it there again,* hu-ɬ-c?ìnax-ała?-e·s (111, 122, X, 1151.2, 1132) *we may go to her,* hu-c-qunax-ała?-is-ne· (111, 131, X, 1151.2, 1132, 1111.1) *we shall go to him;* hu-ɬ-qanałikx-nała?-tił (111, 122, X, 1151.1, 1141) *we should be kicked,* hu-c?inmit-ała-tił-mił-ił-ne· (111, X, 1151.2, 1141, 1131, 1141, 1111.1) *we were thrown out* (*obv.*).

In sequence after themes Y suffix 1151 is obligatorily paired with prefix 51. Sequences in which it occurs are of the types ± 41, 51, Y, ± 1191, 1151, ± 1132; 51, Y, 1174, 1151. Alternant distribution is the same as in the sequences with themes X treated above: ka-?inco·k?-nała (51, Y, 1151.1) *our mouse,* ka-akikł-iy-ała (51, Y_p, 1191.4, 1151.2) *our name,* ?ał-ka-a·knik?-nała?-e·s (41, 51, Y_k, 1151.1, 1132) *our parents* (*obv.*) B 128.57, ka-aqłsmaknik?-mał-nała (51, Y, 1174, 1151.1) *we are all Indians.*

In sequences after themes X suffix 1152 is obligatorily paired with prefix 113. Conversely, suffix 1152 is mutually exclusive with suffixes 1113, 1114, 1121, 1141. Sequences in which suffix 1152 occurs are of the type: ± other prefixes, 113, ± other prefixes, X, ± 1190, ± 1180–1160, 1152, ± 1141, ± 1132, ± 1111.1 *or* 1112. In these sequences, w-final morphemes taking alternants 1000.2 are followed by alternant 1152.2 -u:m-, other morphemes taking alternants 1000.2 are followed by 1152.2 -am-: ɸ-ɬu-nam-ne· (113, X, 1152.1, 1111.1) *there is nobody;* k-ɸ-c-aqw-o·m (101, 113, 131, X, 1152.2) *will there be any?,* ɸ-mitxałtitnam-is-ne· (113, X, 1152.1, 1132, 1111.1) *somebody fired a shot* (*obv.*), ɸ-ya·-kił-?ìtuq?ìłqà-kc-am-nam-ke· (113, 161, 172, X, 1193, 1161.3, 1152.1, 1112) *school house,* k-ɸ-akiyax-niy-am (101, 113, X, 1191.3, 1151.2) *story,* ɸ-yà·-kił-?ìtwà?-nam-is-ke· (113, 161, 172, X, 1152.1, 1132, 1112) *where the stick-game is* (*obv.*), ɸ-skax-am-ne· (113, X, 1152.2, 1111.1) *somebody is coming.*

After themes Y, suffix 1152 occurs in se-

quences of the type Y, ± 1191, 1152, ± 1132: ʔa·ksaqʔ-nam (Y, 1152.1) *leg*, ʔa·kitła-nam-is (Y_p, 1152.1, 1132) *house (obv.)*, ʔa·kikł-iy-am (Y_p, 1191.4, 1152.2) *name*, ʔa·kmak-niy-am (Y_p, 1191.3, 1152.2) *trail*.

Suffix 1153 marks plural of first person and second person object if paired with prefix 111, first person plural object in other sequences. This suffix is obligatorily paired with a prefix of class 110, or with suffix 1114. Conversely, it is mutually exclusive with suffixes 1113, 1121, 1141, 1160, 1182. Sequences in which suffix 1153 occurs are of the types ± other prefixes, 110, ± other prefixes, X, ± 1190–1170, 1153, ± 1130, ± 1111.1 *or* 1112; ± 151, X, ± 1193 *or* 1174 *or* 1171, 1153, 1114: hu-n-ʔipł-awas-ne· (111, 121, X, 1153.4, 111.1) *we killed you*, hin-qʔakpay-at-awas-ne· (112, X, 1171.2, 1153.4, 1111.1) *you forget us*, ✻-qsà-nał-awas-ne· (113, X, 1174.1, 1153.4, 1111.1) *they go with us*, ✻-ṣuk-mu-nawas-is-ne· (113, X, 1181, 1153.3, 1132, 1111.1) *we are satisfied with him*, ✻-qa·kił-paqʔmiłumi-mu-nawas-ne· (113, 132, X, 1181, 1153.3, 1111.1) *it burst on us*.

Suffix 1154 obligatorily forms either a pair with one of affixes 1112, 113, 1121, or a triad with suffixes 1131 and 1113. Conversely, it is mutually exclusive with suffixes 1114, 1141, 1160.

Sequences in which suffix 1154 occurs are of the type ± other prefixes, 112, ± other prefixes, X, ± 1190, ± 1180, ± 1170, 1154, ± 1131, ± 1121, ± 1111.1 *or* 1112; ± other prefixes, 113, ± other prefixes, X, ± 1191, ± 1181, ± 1170, 1154, ± 1132, ± 1111.1 *or* 1112; ± 151, X, ± 1193 *or* 1171, 1154, ± 1131, 1121; ± 151, X, 1154, 1131, 1113: hin-st-ap-ne· (112, X, 1154.1, 1111.1) *I belong to you*, hin-ʔipł-ap-kił-ne· (112, X, 1154.4, 1121, 1111.1) *you (pl.) killed me*, hin-qʔàkpay-at-ap-ne· (112, X, 1171.2, 1154.4, 1111.1) *you forgot me*, xma-k-in-cxa-nat-ap-mił (11, 101, 112, X, 1171.1, 1154.4, 1131) *could you tell me?*; ✻-cłakł-ap-is-ne· (113, X, 1154.4, 1132, 1111.1) *he loves me*, ✻-qàkił-ʔitʔx-nap-ne· (113, 132, X, 1154.3, 1111.1) *he bit me*, ✻-suk-mu-nap-is-ne· (113, X, 1181, 1154.3, 1132, 1111.1) *I'm satisfied with him*; cxa-nat-ap-ke·ł (X, 1171.1, 1154.4, 1121) *tell (pl.) me!*, hałxo·-kc-ap-ke·ł (X, 1193, 1154.4, 1121) *carry (pl.) it for me!*; ʔitkin-ap-mił-in (X, 1154.4, 1131, 1113) *make me! (obv.)*.

In sequence after themes X, suffix 1155 is obligatorily paired with one of suffixes 111, 113. Conversely, it is mutually exclusive with suffixes 1113, 1114, 1141, 1160. Sequences in which suffix 1155 occurs are of the type ± other prefixes, 111 *or* 113, ± other prefixes, X, ± 1190–1170, 1155, ± 1130, ± 1121, ± 1111.1 *or* 1112: hu-n-ułpałn-is-ne· (111, 121, X, 1155.4, 1111.1) *I heard you*, ✻-cxał-ʔitʔx-nis-ne· (113, 131, X, 1155.3, 1111.1) *he'll bite you*, hu-sił-cxa-nat-is-ne· (111, 141, X, 1171.1, 1155.4, 1111.1) *I'm telling you*, hu-cxał-hawickpay-at-is-ne· (111, 131, X, 1171.2, 1155.4, 1111.1) *I've waited for you*, ✻-suk-mu-nis-is-kił-ne· (113, X, 1181, 1155.3, 1132, 1121, 1111.1) *you (pl.) are satisfied with him*, hu-n-ʔik-nał-is-kił-ne· (111, 121, X, 1174.1, 1155.4, 1121, 1111.1) *I eat with you (pl.)*, ✻-cłakł-is-ne· (113, X, 1155.4, 1111.1) *she loves you*.

After themes Y, suffix 1155 occurs in sequences of the types ± 41, Y, ± 1191, 1155, ± 1131, ± 1121; Y, 1174, 1155, ± 1121: ʔał-haca-nis-ke·ł (41, Y_k, 1155.3, 1121) *your (pl.) uncles*, ʔa·kitła-nis (Y, 1153.5) *your (sg.) house*, ʔa·kikł-iyi-nis (Y_p, 1191.4, 1155.3) *your (sg.) name*, ʔa·ke·-nis-mił (Y_p, 1155.3, 1131) *your (sg.) hand*, suyape·-małnis (Y, 1174, 1155.3) *you and another white man*, ʔaqłsmaknikʔ-mał-nis-kił (Y, 1174, 1155.3, 1121) *you are all Indians*.

Suffix 1156 is obligatorily paired with prefix 113. Conversely, it is mutually exclusive with suffixes 1113, 1114, 1121, 1131, 1141, 1160, 1182. Sequences in which suffix 1156 occurs are of the type ± other prefixes, 113, ± other prefixes, X, ± 1190, ± 1181, ± 1170, 1156, ± 1132, ± 1111 *or* 1112. In sequence directly after 1156, suffix 1111 takes alternant 1111.2: pał ✻-qa-ʔitʔx-

naps-e· (v; 113, X, 1156.3, 1111.2) *indeed he wasn't bitten by . . .*, k-∗-ʔuwi-naʔt-aps (101, 113, X, 1171.1, 1156.4) *being barked at by . . .*, k-∗-qakił-ʔik-naps (101, 113, 132, X, 1156.4) *was he eaten by . . . ?*, ∗-qànłałt-mu-naps-e· (113, X, 1181, 1156.3, 1111.2) *he was hit with it*, k-∗-sił-suk-mu-na·ps (101, 113, 141, X, 1181, 1156.3) *satisfied*, ∗-cłakł-aps-is-ne· (113, X, 1156.4, 1132, 1111.1) *he is loved by them.*

Suffix 1157 occurs after themes Y in sequences of the types ± 41, Y, ± 1191, 1157, ± 1132; Y, 1174, 1157. Alternant -i:s- occurs after ʔ-final morphemes, alternant ʔ-i:s- in all other positions: ʔa·kłatʔ-is (Y, 1157) *his arm*, ʔałˑtiłnamu-ʔis-e·s (41, Y, 1157, 1132) *his wives* (*obv.*), ʔała-ʔis (Y_k, 1157) *her girl friend*, swu-ʔis-is (Y_k, 1157, 1132) *his friend* (*obv.*), ʔa·kikł-iyi-ʔis (Y_p, 1191.4, 1157) *his name*, titqatʔ-małˑʔis (Y, 1174, 1157) *he and another man.*

Suffix Class 1160

Suffixes of class 1160 are

1161.3: -nam-, 1161.4 -am-, mutual

1162: -kaʔ-, animate object

Suffixes of class 1160 occur word-finally and word-medially before suffixes of classes 1110–1150, in sequence after themes X. They are obligatorily paired with a prefix of class 110. Conversely, they are mutually exclusive with suffixes 1113, 1114, 1141, 1153–6, 1182$_r$, 1191, 1192. Sequences in which suffixes of class 1160 are found are of the following types ± other prefixes, 110, ± other prefixes, X, ± 1193 *or* 1181, ± 1170, 1160, ± 1151 *or* 1152, ± 1130, ± 1111 *or* 1112; ± other prefixes, 110, ± other prefixes, X, ± 1193, *or* 1181, ± 1170, 1160, ± 1131, ± 1121, ± 1111 *or* 1112. Suffixes of class 1160 are followed by alternants 1000.1, 1000.3, of suffixes 1000.0.

Examples for 1161: kaʔa ʔat k-u-c-ʔa·-qałʔupx-nam-nałaˑ (w; v; 101, 111, 131, 181, X, 1161.3, 1151.2) *how will we see each other?*, kaʔa ʔat k-in-c-ʔàˑ-qałʔupx-nam-kił (w; v; 101, 112, 131, 181, X, 1161.3, 1121) *how will you see each other?*, maˑc huˑł-ʔipił-am (v; 111, 122, X, 1161.4, LK; UK: -ʔupił-) *let us not kill each other!*, hu-cxa-nat-am-neˑ (111, X, 1171.1, 1161.4, 111.1) *we tell each other*, ∗-cxamałˑkc-ałˑam-neˑ (113, X, 1193, 1174.2 1161.4, 1111.1) *they shook hands* B 62.74, k-∗-ʔikteˑ-kc-am-nam (101, 113, X, 1193, 1161.4, 1152.1) *catechism*, ∗-qakił-am-neˑ (113, X, 1161.4, 1111.1) *they said to each other;* for 1162: huˑn-ʔiłwatʔt-kaʔ-neˑ (111, 121, X, 1162, 1111.1) *I order him to*, k-∗-ʔikteˑ-kc-ałˑka (101, 113, X, 1193, 1174.2, 1162) *teacher*, ∗-cxa-nat-kaʔ-neˑ (113, X, 1171.1, 1162, 1111.1) *she told someone* B 268.64, ∗-n-ʔupxa-kaˑ-s (113, 121, X, 1162, 1132) *when they saw somebody* B 92.92, k-∗-cxałˑyoˑwickxuʔ-kaˑ-s (101, 113, 131, X, 1162, 1132) *it will fall on somebody.*

Suffix Class 1170

Suffixes of class 1170 are

1171.1: -naʔt-, 1171.2: -aʔt-, direct object

1172: -ciʔt-, causative; causative imperative singular

1173: -ciʔ-, passive causative

1174: -małˑ, 1174.1: -nałˑ, 1174.2: -ałˑ, comitative

1175: -s-, benefited object

1176: -tmō-, inclusive comitative

Suffixes 1171–1174 occur word-finally or word-medially before suffixes of classes 1110–1160 in sequence after themes X; suffix 1174 occurs word-finally and word-medially also in sequence after themes Y; suffix 1176 occurs only word-finally after themes Y.

Suffix 1171 sometimes forms an obligatory pair with the following: a prefix of class 110, or one of suffixes 1113, 1114.4; sometimes it forms an obligatory triad with one of suffixes 1153, 1154, and with suffix 1121. Conversely, suffix 1171 is mutually exclusive with suffixes 1180, 1193. Suffix 1171 occurs in sequences of the type ± other prefixes, 110, ± other prefixes, X, ± 1191 *or* 1192, 1171, ± 1160–1120, ± 1111 *or* 1112; ± 151, X, 1171, 1113 *or* 1114; ± 151, X, 1171, 1153 *or* 1154, 1121. In these sequences, suffix 1171 is followed by alternants 1000.2, 1000.4, of suffixes 1000.0: hu-sił-cxa-nat-is-neˑ (111, 141, X, 1171.1, 1155.4, 1111.1) *I'm telling you*, xma-k-in-cxa-nat-ap-

mił (11, 101, 112, X, 1171.2, 1154.4, 1131) *could you tell me?*, hu-qaqałwiy-nat-awas-ne· (111, X, 1171.1, 1153.4, 1111.1) *we don't want you to*, k-*-cxał-ʔàqasiłwiy-na·t (101, 113, 131, X, 1171.1) *how much will they want for it?* ne· ʔat k-u-cxa-naʔt-is (w; v; 101, 111, 131, X, 1171.1, 1155.4) *where I'll tell you something*, *-qàcxa-nat-kaʔ-ne· (113, X, 1171.1, 1162, 1111.1) *he didn't tell anyone*, k-*-cxa-nat-am-nam (101, 113, X, 1171.1, 1161.4, 1152.1) *everybody tell each other*, *-sił-ʔumackna-niy-at-awas-ne· (113, 141, X, 1191.3, 1171.2, 1153.4, 1111.1) *he made fun of us;* hàwickpay-aʔt-in (X_r, 1171.2, 1113) *wait for him;* hàwickpay-aʔt-u (X_r, 1171.2, 1114.4) *wait for me!;* cxa-nat-ap-kił (X, 1171.1, 1154.4, 1121) *tell (pl.) me!*.

Suffix 1172 marks causative imperative singular in sequence with theme X only (X, 1172), as in hanmukkup-ce·t wuʔu (X, 1172; Y) *boil that water!* It marks causative only in other sequences. In these other sequences, suffix 1172 is obligatorily paired with one of prefixes 110. Conversely, it is mutually exclusive with suffixes 1113, 1114, 1193. Sequences in which suffix 1172 occurs are of the type ± other prefixes, 110, ± other prefixes, X, ± 1191 *or* 1192, ± 1180, 1172, ± 1160–1120, ± 1111 *or* 1112. In these sequences, suffix 1172 is followed by alternants 1000.2, 1000.4 of suffixes 1000.0: hu-cʔinak-ciʔt-e· (111, X, 1172, 1111.2) *I make him speed*, hu-cukat-cit-ałaʔ-ne· (111, X, 1172, 1151.2, 1111.1) *we make them take it*, k-*-wan-xaʔm-ce·t (101, 113, X, 1172) *he who runs it*, hu-n-ʔik-cit-is-ne· (111, 121, X, 1172, 1155.4, 1111.1) *I make you eat*, hin-c-ła-cʔka-ciʔt-e· (112, 131, 151, X, 1172, 1111.2) *you'll send it back*, *-ciʔkat-a-k-ciʔt-e· (113, X, 1191.4, 1182, 1172, 1111.2) *he makes him look at himself*, hu-n-ʔiktuqu-na-k-ciʔt-e· (111, 121, X, 1191.3, 1182, 1172, 1111.2) *I make him wash himself*.

Suffix 1173 was found in a few examples which point to a possible sequence type ± other prefixes, 110, ± other prefixes, X, ± 1191 *or* 1192, ± 1180, 1173, ± 1160–1120, ± 1111 *or* 1112: *-sukqanqʔàmnat-a-k-ciʔ-ne· (113, X, 1191.4, 1182, 1173, 1111.1) *he is well-mannered*, *-kʔuquna-ciʔ-ne· (113, X, 1173, 1111.1) *it was made short*, where suffix 1173 is followed by an alternant 1000.1; *-ya·-qanałumuxu-ciʔ-ke· (113, .161, X, 1173, 1112) *inner tube*.

In sequence after themes X suffix 1174 is obligatorily paired with a prefix of class 110 or suffix 1114. Conversely, suffix 1174 is mutually exclusive with suffixes 1113, 1182. Sequences in which suffix 1174 occurs are therefore of the following types: ± other prefixes, 110, ± other prefixes, X, ± 1190, ± 1181, 1174, ± 1160–1120, ± 1111 *or* 1112; ± 151, X, 1174, 1114.4. In these sequences, alternants 1174.0 occur before suffixes 1114, 1141, 1153–6, 1160; alternant 1174 in other distributions. Suffix 1174 is followed by alternants 1000.1, 1000.4 of suffixes 1000.0: hu-n-ʔas-mał-mił-ne· (111, 121, X, 1174, 1131, 1111.1) *I was with him*, k-in-c-qsa-mu-nał-ap (101, 112, 131, X, 1181, 1174.1, 1154.4) *will you help me?*, *-cʔinam-nał-ił-ne· (113, X, 1174.1, 1141, 1111.1) *they went away with him*, xma-k-*-ʔupx-ne·-mał (11, 101, 113, X, 1191.3, 1174) *when to see him*, *-sa·nnikit-nał-aps-e· (113, X, 1174.1, 1156.4, 1111.2) *they were becoming angry*, k-*-ʔituqʔiłqa-kc-ał-ka (101, 113, X, 1193, 1174.2, 1162) *teacher*, *-cxàmał-kc-ał-am-ne· (113, X, 1193, 1174.2, 1161.4, 1111.1) *they shook hands* B 62.74; qsa-nał-u (X, 1174, 1114.4) *come with me!*

In sequence after themes Y alternant 1174 occurs in all distributions. Sequences are of the types 51, Y, 1174, ± 1151; Y, 1174, 1155, ± 1121; Y, 1174, 1157: ka-pałke·-mał (51, Y, 1174) *I and another woman*, ka-suyape·-mał-nała (51, Y, 1174, 1151.1) *we are all whites;* titqatʔ-mał-nis (Y, 1174, 1155.3) *you and another man*, ʔaqłsmaknikʔ-mał-niskił (Y, 1174, 1155.3, 1121) *we are all Indians;* titqatʔ-mał-ʔis (Y, 1174, 1157) *he and another Indian*.

Suffix 1175 forms an obligatory triad with a prefix of class 110 and one of suffixes 1153.4–1155.4. Conversely, it is mutually exclusive with suffixes 1113, 1114, 1141, 1160,

1180, 1190. Sequences in which suffix 1175 occurs are of the type: ± other prefixes, 110, ± other prefixes, X, 1175, one of suffixes 1153.4–1155.4, ± 1130, ± 1121, ± 1111.1 *or* 1112.

Examples are: ɸ-c?ka-s-ap-ne· (113, X, 1175, 1154.4, 1111.1) *he sent me over*, hu-c?ka-s-is-ne· (111, X, 1175, 1155.4, 1111.1) *I sent you over*, hu-cukat-s-awas-ne· (111, X, 1175, 1153.4, 1111.1) *we brought it for you*, n'in-?umac-s-ap-ne· (w; 112, X, 1175, 1154.4, 1111.1, style II; style I: ne· hin-) *you make me laugh*.

Suffix 1176 occurs in sequences of the type ± 41, Y, 1176: ?ał-alickił-tmu (41, Y_k, 1176) *several siblings together*, ?ał-swu-tmu (41, Y_k, 1176) *several friends together*, ca?-tmu (Y_k, 1176) *together with his younger brother*, tiłnamu?-tmo· ?a·pá·ł (Y, 1176; W) *Mr. and Mrs. Abel*, swin-tmo· małí (Y_k, 1176; W) *Mary and her little daughter*.

Suffix Class 1180

Suffixes of class 1180 are

1181: -mu:- ~ -mumu-, instrumental

1182: -k-, reflexive

Suffixes of class 1180 occur word-finally or word-medially before suffixes of classes 1110–1170, in sequence after themes X. Suffix 1182 also occurs word-finally and word-medially before suffix 1132 in sequence after themes Y.

Suffix 1181 is obligatorily paired with a prefix of class 110; conversely, it is mutually exclusive with suffixes 1113, 1114, 1171–3, 1175, 1191. Sequences in which suffix 1180 occurs are therefore of the type: ± other prefixes, 110, ± other prefixes, X, ± 1191, 1181, ± 1174, ± 1160–1120, ± 1111 *or* 1112. In these sequences, alternant -mumu- occurs before suffix 1162, alternant -mu:- in all other positions. Suffix 1181 is followed by alternants of types 1000.1, 1000.3: hu-nułpałnitit-mumu-ka?-ne· (111, 121, X, 1181, 1162, 1111.1) *I heard about him*, k-in-tuq?-cqakik-mu (101, 112, X, 1181) *did you tell the news about him?*, hu-mitxałtit-mu-nała?-ne· (111, X, 1181, 1151.1, 1111.1) *we shot him with it*, k-u-kniłwiyt-e·-mo· (101, 111, X, 1191.3, 1181) *what I think with*, hin-qsa-munał-ap-ne· (112, X, 1181, 1174.1, 1153.4, 1111.1) *you are helping me*, ɸ-cxał-litq?àliłłà-hakq?t-e·-mu-ł-ne· (113, 131, X, 1191.3, 1181, 1141, 1111.1) *there will be no more talk about it*, k-ɸ-qanq?o·-mu-ł (101, 113, X, 1181, 1141) *steering wheel*.

In sequence after themes X suffix 1182 is obligatorily paired with a prefix of class 110. It has limited distribution with regard to stems and suffixes. Suffix 1182 occurs: (1) word-finally; (2) before 1172 *or* 1175 ± other suffixes; (3) before 1132 ± 1111.2. It may follow only (1) themes X_r, (2) themes X ± 1193 + 1191, (3) themes X + 1192. Sequences in which suffix 1182 occurs are therefore of the following types: with suffix 1182 in word-final position— ± 10, ± 101, 110, ± 120–150, X_r *or* X ± 1193 + 1191 *or* X + 1192, 1182; with suffix 1182 followed by suffix 1172 or 1173— ± other prefixes, 110, ± other prefixes, X_r *or* X + 1191, 1182, 1172 *or* 1173, ± 1160–1120, ± 1111 *or* 1112; with suffix 1182 followed by suffix 1132— ± other prefixes, 113, ± 120–150, X_r *or* X ± 1193 + 1191 *or* X + 1192, 1182, 1132, ± 1111.2: hu-n-awickpami-k (111, 121, X_r, 1182), hu-n-?a·qaciy-iłi-k (111, 121, X, 1192.4, 1182) *I cut my hand*, hu-ł-cxanatkaxa-mi-k (111, 122, X, 1191.3, 1182) *I should go to confession*, ɸ-pa·cxa?m-kc-i-k (113, X, 1193, 1191.4, 1182) *they scatter* (*intr.*); hu-c?akikta-k-ci?t-e· (111, X_r, 1182, 1172, 1111.2) *I made him suffer*, ɸ-cì?kat-a-k-ci?t-e· (113, X, 1191.4, 1182, 1172, 1111.2) *he makes him look at himself*, hu-n-iktuqu-na-k-cit-ała?-ne· (111, 121, X, 1191.3, 1182, 1172, 1151.2, 1111.1) *we make him wash himself*, ɸ-sukqanq?-àmnat-a-k-ci?-ne· (113, X, 1191.4, 1182, 1173, 1111.1) *he is well-mannered*; k-ɸ-ł-siłcink?apałti-k-e·s (101, 113, 122, 141, X_r, 1182, 1132) *he who should be listening*, ɸ-qakè·kaxu-na-k-s-e· (113, X, 1191.3, 1182, 1132, 1111.2) *it came from there* (*obv.*).

After stems Y, suffix 1182 occurs in sequences of the type ± 51, Y, 1191, 1182, ± 1132: ka-nasukinni?nt-i-k (51, Y, 1191.4, 1182) *my chiefs*, łkamuki?st-e·-k (Y, 1191.4,

1182) *two babies*, nasukinnint-a-k-e·s (Y, 1191.4, 1182, 113) *chiefs* (*obv*.).

Suffix Class 1190

Suffixes of class 1190 are:

1191.3: -mē- ~ -ne·- ~ -niy- ~ -na- ~ -niyi-, 1191.4: -ē- ~ -e·- ~ -iy- ~ -a- ~ -iyi-, reflexivizer I

1192.3: -niɬē- ~ -ne·- ~ -niy- ~ -ni-, 1192.4: -iɬē- ~ -e·- ~ -iy- ~ -i-, reflexivizer II

1193: (-ikc- ~ -kc-) ~ (-iki:c- ~ -ki:c-), indirect object

Suffixes of class 1190 occur after suffixes of classes 1180–1110 in sequence with themes X; suffix 1193 also occurs word-finally in sequence with themes X; suffix 1191 also occurs word-medially in sequence after themes Y. Contrary to other decade classes of suffix class 1100, suffixes 1191 and 1193 are not mutually exclusive. If both are included in the same sequence, their mutual order depends on other suffixes present in the sequence: in ✻-pa·cxa?m-kc-i-k (113, X, 1193, 1191.4, 1182) *they scatter* (*intr.*), 1193 precedes 1191; conversely, in k-✻-wanaqnà-niy-ikc-ał-ka (101, 113, X, 1191.3, 1193, 1174.2, 1162) *soldier*, 1191 precedes 1193. Sequences in which only one suffix of class 1190 is present are much more frequent. They are treated below.

In sequence with themes X, suffixes 1191 and 1192 have similar distribution. Both are obligatorily paired with a prefix of class 110 or suffix 1113. Conversely, they are mutually exclusive with suffixes 1114 and 1141. Some sequences containing suffixes 1191, 1192 also contain suffix 1182; for these see the treatment of suffix 1182 above. Sequences containing suffix 1191 or 1192 without suffixes 1182 and 1193 are of the type ± other prefixes, 110, ± other prefixes, 1191 *or* 1192, ± 1181, ± 1171 *or* 1174, ± 1160, ± 1150, ± 1130, ± 1121, ± 1111 *or* 1112; one additional suffix besides 1191, 1192, is, however, always present; suffix 1191 is also found in sequences of the type ± 151, X, 1191, 1113. In these and other sequences, alternants 1191.3 -mē-, 1191.4 -ē-, 1192.3, niɬē-, 1192.4 -iɬē- occur before word-final suffix 1182 and suffix 1112; alternants 1191.3 -ne·-, 1191.4 -e·-, 1192.3 -ne·-, 1192.4 -e·- occur before suffixes 1181, 1174; alternants 1191.3 -niy-, 1191.4 -iy-, 1192.3 -niy-, 1192.4 -iy- occur before suffixes which have alternants of type 1CC0.2 and suffixes 1131, 1121; alternants 1191.3 -na-, 1191.4 -a- occur before suffix 1113 and word-medial suffix 1182; alternants 1192.3 -ni-, 1192.3 -i- occur before word-medial suffix 1182: ne· hin-yà·-qanqame·-ke· (w; 112, 161, X, 1191.3, 1112) *your sitting there*, hu-c-?ititła?t-i-k (111, 131, X, 1191.4, 1182) *I'll build myself a house*, hu-n-anułax-nili-k (111, 121, X, 1192.3, 1182) *I lead my horse*, ✻-n-a[illegible]?t-iɬi-k (113, 121, X, 1192.4, 1182) *they were talking*; hu-n-?upxne·-mał-ne· (111, 121, X, 1191.3, 1172, 1111.1) *we saw each other*, ✻-cxał-cukat-e·-mał-ne· (113, 131, X, 1191.4, 1174, 1111.1) *they'll get married*, ✻-taq?t-e·-mał-ne· (113, X, 1192.4, 1174, 1111.1) *he talked to it*, hu-kniɬwiyt-e·-mu-ne· (111, X, 1191.4, 1181, 1111.1) *I'm thinking with it;* k-✻-cxànatkax-niy-am (101, 113, X, 1191.3, 1152.2) *confession*, cin'u-n-anułax-niy-ała?-ne· (v; 111, 121, X, 1192.3, 1151.2, 1111.1, style II; style I: cin hu-) *we just lead our horses along*, napit hin-anaq-niy-kił (v; 112, X, 1191.3, 1121) *if you sat down*, hu-n-?ititłat-iy-ała?-ne· (111, 121, X, 1191.4, 1151.2, 1111.1) *we built ourselves a house;* hu-n-?aqaciy-iy-ała?-ne· (111, 121, X, 1192.4, 1151.2, 1111.1) *we cut our hands;* ✻-qa·c?ła·nxu-na-k-s-e· (113, X, 1191.3, 1182, 1132, 1111.2) *there was a windfall* (*obv.*); ✻-łitmakn-i-k-s-e· (113, X, 1192.4, 1182, 1132, 1111.2) *it didn't leave a trail;* ci?kat-a-m (X, 1191.3, 1113) *look at yourself*. (See also examples listed under suffix 1182.)

After themes Y, suffix 1191 is found in sequences of the types Y, 1191, 1182, ± 1132; 51, Y, 1191, 1182 *or* 1131; 51, Y, 1191, 1151, ± 1132; Y, 1191, 1153, ± 1131, ± 1121; Y, 1191, 1157, ± 1132. In these sequences, alternants 1191.3 -niyi- and 1191.4 -iyi- are found before suffixes 1155 and 1157— these alternants are followed by alternant 1155.3;

in other positions, the distribution of the alternants of 1191 is the same as in sequences with themes X treated above: ʔa·kmak-niyi-ʔis (Y_p, 1191.3, 1157) *his trail*, ʔa·kikɬ-iyi-nis (Y_p, 1191.4, 1155.3) *your (sg.) name*, nicta·-ɬnanani ʔnt-e·-k (Y, 1191.4, 1182) *the little boys*, titqat ʔki ʔst-i-k (Y, 1191.4, 1182) *two men*, nasukinnint-a-k-e·s (Y, 1191.4, 1182, 1132) *the chiefs (obv.)*, ka-nasukinni ʔnt-e·-k (51, Y, 1191.4, 1182) *my chiefs*, ka-nasukinnint-iy-ała (51, Y, 1191.4, 1151.2) *our chiefs*.

Suffix 1193 is obligatorily paired with one of prefixes of class 110 or with suffix 1114. Conversely, it is mutually exclusive with suffixes 1113, 1171–3, 1175, 1181. Sequences in which suffix 1193 occurs without suffixes 1191 or 1192 are of the following types: ± other prefixes, 110, ± other prefixes, X, 1193, ± 1174, ± 1160–1120, ± 1111.1 *or* 1112; ± 151, X, 1193, ± 1174, ± 1153, 1114. In these sequences, alternants -iki:c- and -ki:c- occur before suffix 1132 followed by suffix 1111.2, before suffixes 1112, 1131, and in final position, alternants -ikc- and -kc- occur before other morphemes. In this frame, alternant -ikc- is in turn found after morphemes ending in stops, semivowels, and clusters, alternant -kc- in all other positions; alternant -iki:c- is found after morphemes ending in nasal-final cluster, alternant -ki:c- in all other positions. Suffix 1193 is followed by alternants 1000.2, 1000.4, of suffixes 1000.0: hu-qa·mat-ikc-e· (111, X, 1193, 1111.2, style II; style I: -qahamat-) *I didn't give it*, k-u-cukat-ikc-is (101, 111, X, 1193, 1155.4) *I'll get it for you*, hin-c-ła-c ʔkałkin-ikc-ap-ne· (112, 131, 151, X, 1193, 1153.4, 1111.1) *you'll bring it back to me*, ✱-yè·ko·-kn-ikc-iɬ-ne· (113, X, 1193, 1141, 1111.1) *he was given five*, k-✱-ʔituq ʔiɬqa-kc-ał-ka (101, 113, X, 1193, 1174.2, 1162) *teacher*, k-✱-ʔikte·-kc-am-nam (101, 113, X, 1193, 1161.4, 1152.1) *catechism*, ✱-cxàmał-kc-ał-am-ne· (113, X, 1193, 1174.2, 1161.4, 1111.1) *they said to each other* B 62.73–4, k-✱-sɬ-amat-ke·c (101, 113, 151, X, 1193) *he who gives it to him*, ✱-itkin-kic-s-e· (113, X, 1193, 1132, 1111.2) *he does it to him (obv.)*; hin-ałxo·-kic-kiɬ-ne· (112, X, 1193, 1121, 1111.2) *you (pl.) carried it for him*, hamat-ikc-u (X, 1193, 1114.4) *give it to me!*

III. THEME TYPES

0. There are three basic types of themes in Kutenai: X, Y, W. In addition, there are three special sub-types which have more limited distribution than the corresponding basic types: X_r, Y_p, Y_k.

1. Minimum sequences for themes X are 110, X; X, 1113; X, 1114; X, 1121: huq ʔumne· (111, X) *if I slept*, ʔitkin-in (X, 1113) *do it!*, pisxu ʔ-nu (X, 1114.3) *put me down!*, ʔe·-ke·ɬ (X, 1121) *eat (pl.)!*

Elaborations of these minimum sequences occur with prefixes 10, 120–180, and suffixes 1111, 1112, 1120–1140, 1151–6, 1160, 1171–5, 1180, 1190, in the relative order and possible combinations discussed in the preceding section.

2. Minimum sequences for themes X_r are 110, X_r, suffix; X_r, 1113; X_r, 1121: huq ʔakpame·-k (111, X_r, 1182) *I forgot*, ʔaquɬiła-m (X_r, 1113) *buy it!*, q ʔakpay-ke·ɬ (X_r, 1121) *forget (pl.) it!*

Elaborations of these minimum sequences occur with prefixes 10, 120–180, and suffixes 1111, 1112, 1120–1140, 1151–6, 1160, 1171–5, 1180; possible distributions of a special theme X in such elaborations are the same as those of a basic theme X + suffix 1191 *or* 1192. (See section II, Suffix Class 1180, Suffix Class 1190)

3. The minimum sequence for some themes Y is Y; for other themes Y it is Y, 1191, suffix: ʔa·kic ʔła ʔin (Y) *tree*, nasukinni-ʔnt-e·-k (Y, 1191.4, 1182) *chiefs*.

Elaborations of these minimum sequences occur with prefixes 41, 51, and suffixes 1121, 1131, 1132, 1151, 1152, 1155, 1157, 1174, 1176, in the relative order and possible combinations discussed in the preceding section.

4. Minimum sequences for some themes Y_p are 51, Y_p; Y_p, 1152; Y_p, 1155: Y_p, 1157; for other themes Y_p they are 51, Y_p, 1191, suffix; Y_p, 1191, 1152; Y_p, 1191, 1155; Y_p, 1191, 1157: ka-a·kitła (51, Y_p) *my house*, ʔa·kikłuʔ-nam (Y_p, 1152.1) *town, camp*, ʔa·-ke·-nis (Y_p, 1155.3) *your hands*, ʔa·kicqʔahe·-ʔis (Y_p, 1157) *his finger;* ka-a·kikł-i-k (51, Y_p, 1191.4, 1182) *my name*, ʔa·kmak-niy-am (Y_p, 1191.3, 1152.2) *trail*, ʔa·kikł-iyi-nis (Y_p, 1191.4, 1155.3) *your name*, ʔa·kmak-niyi-ʔis (Y_p, 1191.3, 1157) *his trail.*

Elaborations of these minimum sequences occur with suffixes 1121, 1131, 1132, 1151, 1174, in the relative order and possible combinations discussed in the preceding section.

Most themes Y_p denote parts of the human body and items of material culture.

5. Minimum sequences for themes Y_k are 51, Y_k; Y_k, 1155; Y_k, 1157; Y_k, 1176: ka-titu (51, Y_k) *my father (man speaking)*, xałiʔ-nis (Y_k, 1155.3) *your son*, ʔała-ʔis (Y_k, 1157) *her girl friend*, swin-tmo· (Y_k, 1176) *together with her daughter.*

Elaborations of these minimum sequences occur with prefix 41, suffixes 1121, 1131, 1132, 1151, 1174, in the relative order and possible combinations discussed in the preceding section.

Themes Y_k denote related human beings (kinship terms and terms for friend).

6. The minimum sequence for themes W is W: na (W) *this*, qayaqawo· (W) *half.*

Elaborations occur with suffix 1132: qo·-ʔs (W, 1132) *there*, ʔa·qatʔa·k-s (W, 1132) *nearby.*

AMAHUACA PHONEMES

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0. Introduction
1. Consonants
2. Distribution of consonants
3. Vowels
4. Distribution of vowels
5. Stress

0. Amahuaca is a member of the Pano family of Indian languages spoken by the Amahuaca Indians living on the Sepahua, Inuya and Sheshea rivers in eastern Peru and extending from these rivers eastward into western Brazil. The number of speakers is estimated at three or four thousand. Information for this paper was gathered in the spring of 1947 in a field trip to central Peru under the auspices of the Summer Institute of Linguistics. My Amahuaca informant was Richarte, a boy of about eighteen or nineteen years.

1. The fourteen consonants of Amahuaca are: p, t, k; ʔ; č; θ, s, x; m, n; r; w, y, h.

1.1.1. The stops, p, t, k, are voiced when in morpheme initial after a morpheme ending in a nasalized vowel. In all other positions p and t are voiceless unaspirated. Examples are: pĩpĩ′ki [pĩbĩ′gi] *to fan*, taʔĩ′ *foot*, [ĩ dáʔĩ] *my foot*, [kĩ′xtį gópira] *how much does it cost?* kopíkį *to pay*. Examples of voiceless p and t: mapo′ *head*, tǫnǫ′ *kind of fish*.

When in morpheme medial after a nasalized vowel, p, t, k, and also θ, appear phonetically as Mp, Nt, Ŋk, Nθ in which both the homorganic nasal and the following consonant are voiceless. wįpís [wįMpís] *guayaba*, kĩtí [kĩNtí] *cooking pot*, kąká [kąŊká] *pineapple*, wǫθį [wǫNθį] *nutria, an animal*.[1]

[1] Does not occur in hǫθo *butterfly*.

A theoretical question is raised here; are the homorganic nasals to be regarded as allophones of the preceding nasalized vowels, or as allophones of the following stops or θ? On the analogy of the distribution of voiced p, t (and k), our analysis favors the latter: consonants after nasalized vowels are either voiced, or appear with preceding nasal, depending on whether the stop (or θ) is morpheme initial, or morpheme medial.

1.1.2. k is a voiced fricative in the sequence ĩko or ĩka: nĩkó *clay*, nĩká *trumpeter bird*.

In addition to the phonetic voicing after nasalized vowels already described for p, t, and k, k is voiced in the sequence glottal stop-k-vowel, and also as the first phoneme of a bound morpheme when following any voiced phoneme, whether a nasalized vowel or not. čosnáʔka *woman's skirt*, tiníkį (tini + kį) *to stretch*.

Otherwise k is voiceless unaspirated: iθokóro *choro, a kind of monkey*, paká *a kind of tree*.

1.2. The glottal stop, ʔ, has a wider distribution than the other stops. For this reason it has been classed alone. taʔĩ′ *foot*, piʔyá *man's nephew*.

1.3. The affricate, č, is voiceless. čaí *high*, kačawį *lemon*.

1.4. The fricatives θ, s, and x are voiceless. For allophone of θ following nasalized vowels see **1.1.1.**, maʔθootí *broom*.

x is palatalized syllable initial. In syllable final it is palatalized if the following syllable begins with a vowel: maxáx *basket*.

The sequence -xo in the final syllable of a

word may alternate freely between [-xo] and [-xʸo]: čaxó *deer*, koxó *wild turkey*.

s is formed by placing the tip of the tongue against the lower teeth and raising the central part of the tongue against the alveolar ridge. Before or after i, this sound is slightly fronted: somó *water jar*, čisná *pallid*.

1.5. The nasals m and n are voiced. mamǫ́ *large bee*, nǫnǫ́ *duck*.

The allophone nasal plus homorganic voiced stop occurs before oral vowels when the nasal occurs other than in morpheme initial or following another consonant: tamó [tambó] *cheek*, honí [hondí] *man*, ramamá ([ramba] *now* + -ma *negativizer*), hĩnĩ′ʔno [hĩndĩ′ʔno] *lobo, a kind of fish*.

1.6. The flap, r, is voiced. romĩ′ *tobacco*, iθokóro *choro, a kind of monkey*.

1.7. The semi-vowels are w and y. wayó *weak*, yotá *tarantula*.

w has a voiced bilabial fricative allophone that occurs as a free variant before i and į, or after i and į: riθwí [riθβí] *rope*, wi [βi] *mosquito*, kačawį [kačaβį] *lemon*, wina′ [βinda′] *hornet*, tiwarix̃ĩtĩ [tiβarixʸ̃ĩtĩ] *year*.

h is a glottal spirant with the timbre of the following vowel: hǫkó *grasshopper*, haĩ′ *what?*

2. Distribution of consonants.

2.1. General distribution. All consonants occur in syllable initial. The glottal stop occurs in word medial and h in morpheme initial. All other consonants occur word initial and medial: arowa′ *clean*, wina′ *wasp*, čįką́ *lower back*, hǫθó *butterfly*, kaʔi′ *forward*, koniwo′ *Chama* (Indian), mapo′ *head*, pĩkaθątí *shoulder*, rĩkį′ *nose*, rątǫko′ *knee*, nǫti′ *canoe*, nawa′ *blue*, sará *pretty*, θowá *who?*, wosti′ *comb*, xĩta′ *tooth*, xoči′ *breast*, yoči′ *chile pepper*.

Glottal stop occurs in syllable final word medial:[2] aʔθa′ *yuca*, akįʔkį *to help*.

Only the fricatives occur in syllable final (in word medial and in word final): čisná *pallid*, wįpís *guayaba*, riθwi′ *rope*, tapáθ *house*, kĩxti′ *how much?*, axáx *vine*.

Any consonant may occur before or after any vowel.[3]

2.2. Consonant clusters. Single consonants occur either in syllable initial or in syllable final. Within the word, syllable final fricatives may be followed by stops, nasals, w and y: wosti′ *comb*, čisná *pallid*, paxkó *creek*, aʔθá *yuca*, riθwí *rope*, nismį *wasp*, iθkó *paucar, a bird*, miskití *fishhook*, tąyáxkį *to slip*.

In addition to stops, nasals, w and y, glottal stop may be followed by θ: wĩʔθará *another*, wiskóʔki *to shake a tree*, piʔyá *man's nephew*, kosmaʔnáʔa *to be hungry*.

3. The eight vowels of Amahuaca are: four oral, i, a, o, ĩ; and four nasal, į, ą, ǫ, ĩ.

3.1. Of the oral vowels, i is high front open unrounded, varying freely to a more close position: piʔθó *parrakeet*, riθí *hammock*.

a is low central open unrounded: aʔθá *yuca*, xatá *light weight*.

o is mid back close rounded. The norm is slightly high with free variation to a high close position: hokó *homespun thread*, čopá *clothes*.

ĩ is high back close unrounded varying freely to more open: kĩθáno *because*, mĩkĩ′ *hand*.

3.2. The nasalized vowels occur in the same positions as the oral ones: įsarahoápĩ *slow*, xatą′ *waterpot*, mastĩ′ *straight*, kǫʔį′ *smoke*, įyą′ *lake*, kąką′ *pineapple*, θĩpa′ *kind of gourd*, kotǫ́ *shirt*.

[2] Glottal stop occurs as a non-phonemic segment finally in all utterances not ending with another consonant.

[3] This is the pattern pressure of the system. The following VC and CV patterns do not occur in the data: ĩč, ąč, įč, ǫč; čǫ, čĩ; oh, įh, ĩh; ĩk; ǫr; ǫs; sĩ, są, sǫ, sĩ; xǫ, xĩ, xĩ; yi, yi, yĩ; oθ; θǫ.

4. Distribution of vowels.

4.1. General distribution. Any vowel may occur in syllable initial or final; or word initial or final: iθko′ *paucar, a bird*, rīkį′ *nose*, rątǫ́ko *knee*, mīkĩ *hand*, onąkí *to learn*, ĩ *my*, ǫθaí *to lie*, iyá *louse*, įyą′ *lake*, arawa′ *clean*, ąθį′ *paojil, a bird*.

Any vowel may occur before or after any consonant.[3]

4.2. Vowel clusters. Clusters of two vowels may be classified in two groups, clusters of identical vowels, and clusters of non-identical vowels.

All the vowels occur in identical clusters: niiwo′ *scorpion*, įįki′ *to see*, naawá?i *rainbow*, kąąkąĩ′?ąi *I walk*, wooxni′ *grey hair*, topǫǫramį?gai *you tell a story*, kĩį?kąĩ′?ąi *I want*, činīxĩĩrá?ganį *he wraps a band around himself*.

Non-identical clusters of two vowels are listed below according to the second vowel of the cluster, both oral and nasal.

i and į: oi, hokoi′ *to cough;* ĩi, tiθĩi′ *I pull;* ąi, kĩį?kąĩ′?ąí *I want;* įi, čįrįi′ *to dance;* ǫi, hokǫi′ *to grow (vegetation);* ąi, háǫ rakaí *I press down from above;* aį, kaxanayahąinǫnĩ′ *tomorrow I will shout;* ąį, nókĩ tĩna?gą́į *we hurt.*

Ending in a and ą: oa, wīpoa′ *it is closed;* ĩa, romĩáką *to smoke;* ąa, axąa′ *fish;* ĩą, nokįakį′ *we do*.

Ending in o and ǫ: ao, naókį *to throw out water;* ąǫ, háǫ rakai′ *I press down from above.*

Ending in ĩ and į: aĩ, haĩ′ *what;* aį, ayakaįsį?kĩ *yesterday I drank;* įĩ, hĩ́θa hǫkaθiĩ-rĩ́tĩi *he cannot kill;* ąĩ, hayama?ipąĩ′ *we do not have.*

The occurrences of the sequence VV were recorded neither in terms of diphthongs nor rearticulated vowels. My memory seems to indicate the latter rather than the former. In favor of this we have a distribution feature for such vowel clusters, namely clusters formed by the juncture of two morphemes. Examples are: rakai′ *I press down*, raka- + -i; romĩáką *to smoke*, romĩ- + -akį; wīpoa′ *it is closed*, wīpo- + -a. On the other hand, the stress falling on the final member of a two vowel cluster may suggest a rising diphthong. Note the following pair: mái *listen*, (imperative); mai′ *earth.*

Clusters of three vowels have been found in the following words: ma?mamįhĩθį′ąi *he has already twisted*, mataxyotanoĩį *I am going to throw.*

5. Stress is phonemic; note the following pair: nanīkį′ *to give off smoke*, nánīkį *to put in.* Such pairs are rare.

The favored positions of stress in the word are on the ultimate, penultimate or antepenultimate syllable: haĩ′ *what*, wakó?ma *water*, ramamápisti *yesterday.*

The patterns of stress fall into two groups, fixed stress and non-fixed stress.

Morphemes with fixed stress remain so stressed in collocation with other morphemes: rĩ́tĩkį *to kill*, kĩθa hǫkaθiĩrĩ́tĩi *he cannot kill.*

Morphemes with non-fixed stress have a stress shift in collocation with other morphemes: bįsį *tiger*, íno bįsį *brown tiger;* ta?ĩ′ *foot*, ĩ tá?ĩ *my foot.*

SIERRA POPOLUCA PERSONAL NAMES

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1. Surnames
2. Nicknames
3. Given names

1. A number of the Spanish surnames used among the Sierra Popoluca[1] have a corresponding Popoluca form which precedes the given name as the first element of a compound. This corresponding form is either a native Popoluca word or a phonemic adaptation of the Spanish surname. Spanish names having such Popoluca equivalents are relatively few in number (about fifteen out of a total of some forty surnames), but are more widely used among the Popoluca than are the other Spanish surnames. Every individual, however, uses a Spanish surname for legal records and documents.

'mo·ho[2] *species of tree*[3] is the Popoluca equivalent for *Gutiérrez*. In accordance with a regular morphophonemic operation the form is shortened to mo·- when preceding the given name. (For phonemic changes in given names see **3.**) Examples: mo·'pe·to *Pedro Gutiérrez*, mo·'siskoh *Francisco Gutiérrez*.

'meca (meaning?) is the Popoluca equivalent for *González*. The form 'ma·ca *star* is used by one González family. Examples: meca'šiwan *Juan González*, mecabi'bianah *Viviana González*, ma·ca'pe·toh *Pedro González*.

'še·pa (meaning?) is the Popoluca equivalent for *Albino*. Examples: še·pa'pe·toh *Pedro Albino*, še·pa'la·rioh *Hilario Albino*.

'to?oč (meaning?) is the Popoluca equivalent for *Rodríguez*. Examples: to?očale-'be·rtoh *Alberto Rodríguez*, to?oč'li·ndah *Hermelinda Rodríguez*.

'wo?oši (meaning?) may correspond either to *Santiago*[4] or *Hernández*. In accordance with a regular morphophonemic operation the form is shortened to 'wo?oš- when preceding the given name. Examples: wo?oš-'le·nčoh *Lorenzo Santiago*, wo?oš'če·ndoh *Rosendo Santiago*, wo?oš'ʸe·koh *Diego Hernández*, wo?ošma'liah *María Hernández*.

'ho?o (meaning?), tʸunkwan (meaning?) and tʸu·ki *turtle* also correspond to *Hernández*. Examples: ho?o'mattin *Martín Hernández*, tʸunkwan'husih *José Hernández*, tʸu·ki'pe·toh *Pedro Hernández*.

wa·ŋ *horn* and 'lamun (meaning?) are the

[1] The Sierra Popoluca Indians are located in the southern part of the State of Veracruz, Mexico. Their center is Soteapan, a town about thirty miles north of the National Railway of Tehuantepec. The writer has been doing field work in the area at varying periods since 1942 under the direction of the Summer Institute of Linguistics, Inc., Glendale, Calif. Notes on this paper were gathered chiefly while helping the local authorities type up the census of some of the Popoluca towns.

Ethnological work has been done among the Popoluca by George M. Foster. A description of their culture is found in Foster's A Primitive Mexican Economy (Monographs of the American Ethnological Society 5 [1942]).

[2] Descriptions of Sierra Popoluca phonemes may be found in Foster's The Geographical, Linguistic, and Cultural Position of the Popoluca of Veracruz, AA 45.531–46 (1943), and in my Sierra Popoluca Syllable Structure, IJAL 13.13–17 (1947). For the convenience of the reader the phonemes are again mentioned here. The consonant phonemes are: p, t, tʸ, k, ʔ, b, d, dʸ, g, c, č, s, š, m, n, ñ, ŋ, w, y, h. The vowel phonemes are: i, e, a, o, u, ï. The suprasegmental phonemes are: stress and length.

[3] Very possibly 'mo·ho *Gutiérrez* and 'mo·ho *species of tree* are simply homonyms. I have observed no evidence whatever of totemism among the Popoluca.

[4] The Sierra Popoluca use a considerable number of standard Spanish given names as surnames. Examples: Pablo, Santiago, Manuel, Matías, Mateo.

Popoluca equivalents for *Ramírez*. Examples: wa·ŋ'mikit *Miguel Ramírez*, wa·n-'roman *Romualdo Ramírez*, lamun'pe·toh *Pedro Ramírez*.

ʔikš (meaning?) and šeke (meaning?) are surnames that have all but died out. One of my informants had a grandmother whose surname was ʔikš. There is an old woman in the village of Cuiloña who is called šeke'čo·mo ('čo·mo *old woman*). None of the informants questioned could remember the Spanish equivalents for these surnames.

'ku·nus is the Popoluca adaptation of *Cruz*. Examples: ku·nus'pe·toh *Pedro Cruz*, ku·nus'pabloh *Pablo Cruz*.

'hana is the Popoluca adaptation of *Manuel*. Examples: hana'pe·toh *Pedro, Manuel*, hana'mattin *Martín Manuel*.

'ʔuris is the Popoluca adaptation of *Arizmendi*.[5] Example: ʔuriš'šiwan *Juan Arizmendi*.

'matʸiš is the Popoluca adaptation of *Matías*. Examples: matʸiš'husih *José Matías*, matʸiš'mattin *Martín Matías*.

'rioh is the Popoluca adaptation for *Ríos*. Example: rioh'widʸay *Old man Ríos*[6] ('wʌdʸay *old man*).

All other Spanish surnames observed among the Popoluca have neither Popoluca equivalents nor phonetic adaptations, nor do they ever precede the given name. Example: 'tu·maš 'arias *Tomás Arias*. Some of the most widely used among these names are Arias, López, Nolasco, Pérez, Martínez, Cervantes, García and Márquez.

2. In the village of Ocotal Chico all but five out of a male population of forty have nicknames; some of these men have two or three. The nicknames of some men are never used in their presence, whereas for other men the nickname is always used in ordinary conversation. Usually nicknames are given because of some physical or other characteristic. Some, however, seem to be unexplainable. In some instances the parents nickname their children while they are yet small and the name may remain with them throughout their lifetime. A few nicknames are Spanish words. Below are presented some of the nicknames of the men of the village of Ocotal Chico, with the informant's explanation placed in brackets if such was given.

matʸiš'lu·š *Luís Mateo:* cuk *rat* or ma'-hiywiñ *lightning*.

še·pa'pe·toh *Pedro Albino*: šoh (cf. soh *oak tree*).

mo·'šiwan *Juan Gutiérrez*: 'ta·cik 'nu·tu *ear lump* [because he has a lump on his ear].

mo·'ma·simoh *Maximo Gutiérrez*: 'ʔu·ki *drunkard* [because he is the town drunk; he also gets angry easily].

mo·'pañtʸah *Pantaleón Gutiérrez*: ka·ŋ *jaguar* [because of the león in hisname].

wa·ŋ'noboah *Cenovevo Ramírez*: 'ñuʔupu (cf. 'nuʔupu *buzzard*).

meca'lu·sioh *Lucio González*: lisen'siadoh *lawyer* [he is the leader of the political party not in power].

mo·'la·rioh *Hilario Gutiérrez*: 'we·če *termite* [because he has an over-sized abdomen].

mecame'le·sioh *Melecio González*: nak *toad* [because he has no body hair].

woʔoš'če·ndoh *Rosendo Santiago*: 'palidoh *pallid* [because of his sickly complexion].

meca'pe·les Félix González: 'tu·miñ 'ko·-bak *money head* [because he is bald headed].

3. Sierra Popoluca children are assigned given names according to the custom of the area, which is to look up the date of birth in a Catholic almanac and choose a name from among the saints listed for that day. If the parents do not like any of the names listed they may choose one from among those listed on the day after or the day before.

All given names are from Spanish. These frequently are adapted to the Popo-

[5] The name Arizmendi is supposed to be of French origin. Only one man in the area is named Arizmendi, but in another generation the name will be widespread as he has had many sons.

[6] Ríos is a name that has just been introduced into the area by Zapoteco traders who have come in from Oaxaca.

luca phonemic pattern in ordinary conversation (the Spanish pronunciation is used to outsiders and in formal business). The adaptation is not consistent for all occurrences of Spanish phonemes in any given phonemic environment. Certain tendencies, however, may be noted.

In certain names Spanish r becomes Popoluca t: *Martín* > 'mattin, *Marcos* > 'ma·tkuš, *Gaspar* > 'kašpat. In certain other names Spanish r disappears completely: *Pedro* > 'pe·toh, *Andres* > '?antih. In still other names Spanish r remains unchanged: *Alberto* > ?ale'be·rtoh, *Ricardo* > 'rikah.

In many names Spanish voiced stops become voiceless in Popoluca: *Pedro* > 'pe·toh, *Diego* > 'tʸe·koh, *Miguel* > 'mikit, *Gaspar* > 'kašpat. In other instances Spanish voiced stops remain voiced in Popoluca: *Alberto* > ?ale'be·rtoh, *Heladio* > 'la·dioh.

In certain names syllable final Spanish s becomes Popoluca š: *Tomás* > 'tu·maš, *Luís* > 'lu·š, *Marcos* > 'matkuš, *Gaspar* > 'kašpat. In other instances syllable final Spanish s remains unchanged in Popoluca: *Pascual* > 'paskwah, *Agustín* > ?a·'kustin.

In certain names Spanish diphthongs, except word final ones, are reduced to a single long vowel in Popoluca: *Diego* > 'tʸe·koh, *Teófilo* > 'tʸu·peloh, *Luís* > lu·š. In other names a consonant is introduced to divide the vowels of the cluster: *Mateo* > ma·'tʸe·yoh. In other instances there is a change of both vowel and consonant: *Juan* > 'šiwan, *Juana* > 'šiwanah.

In certain names Spanish l is lost in Popoluca: *Marcial* > 'marsiah, *Pascual* > 'paskwah. In other instances Spanish l becomes Popoluca t: *Miguel* > 'mikit.

In certain names Spanish f becomes Popoluca p: *Faustino* > 'pawstinoh, *Fermín* > 'permin, *Felipe* > 'pi'li·pih.

In certain names Spanish mid vowels become Popoluca high vowels: *Felipe* > pi'li·pih, *Obaldo* > ?u'ba·lduh, *Teófilo* > 'tʸu·peloh.

In all names Spanish x (= ks) becomes Popoluca s: *Felix* > 'pe·les, *Sixto* > 'si·stoh, *Maximo* > 'masimoh.

In all names a Spanish alveolar stop becomes Popoluca tʸ : *Diego* > 'tʸe·koh, *Teófilo* > 'tʸu·peloh, *Mateo* > ma·tʸe·yoh.

In all names Spanish word final vowels develop an h in Popoluca: *Pedro* > 'pe·toh.

Names with stress on the final syllable in Spanish become stressed on the penult in Popoluca: *José* > 'husih, *Martín* > 'mattin, *Tomás* > 'tu·maš, *Fermín* > 'permin.

Certain Spanish names lose a syllable or more as the adaptation is made in Popoluca: *Lorenzo* > 'le·nčoh, *Francisco* > 'si·skoh, Pantaleón > 'pañtʸah, Acensión > ču·ŋ, *Lázaro* > 'laših, *Victorino* > 'bikoh, *Wenceslao* > 'bensah.

THE KAINGANG LANGUAGE

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0. Linguistic relationship, background, general impression
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0. The Kaingang languages form a well-defined sub-group within the Žes linguistic stock. Kaingang-speaking peoples inhabit the eastern mountain ranges of Brazil from the state of São Paulo to about the northern border of the modern state of Uruguay, and extend into the state of Misiones in Argentina. The history of the Kaingang tribes points clearly to a recent splitting, and the linguistic evidence confirms this, for the Kaingang languages are very much alike. At the present time the nearest linguistic relatives of the Kaingang-speaking groups of southeastern Brazil and Argentina appear to be the Kayapó and Canella of northeastern Brazil. Perhaps the most striking feature of Kaingang historical relations is the great similarity in phonetic structure between Kaingang and Guaraní.

The Kaingang that are the object of this paper[1] are divided into mutually hostile endogamous groups. The population of any one of these groups rarely exceeds 300. There is great uniformity of linguistic habits in each group.

Kaingang is a very sonorous language. Of the 18 consonants 13 are voiced, and of these 9 are nasals or are nasalized. Kaingang has 7 nasalized vowels. Although the relative frequency distribution of non-nasalized and nasalized vowels within the sentence is only about 4 to 1, the occurrence of the nasalized vowels increases the sonority.

The Kaingang speak vigorously, with a relaxed oral mechanism, and with a very mobile mouth.

When the Kaingang become separated while hunting and wish to communicate they do not shout but call out in a high-pitched voice that resembles the top-most "head tones" of a good tenor. These light tones have great carrying power.

[1] They live in the municipality of Dalbergia on the Rio Plate in the state of Santa Catarina, Brazil. See now: Jules Henry, A Kaingang Text. IJAL 8.172–218 (1935), and The Linguistic Expression of Emotion, AA 38.250–256 (1936); Frae Mansueto Barcatta de Val Floriana, Ensaio de Grammatica Kainjgang, Revista do Museu Paulista, vol. X, (São Paulo, 1918); Diccionarios Kainjgang-Portuguez e Portuguez-Kainjgang, Revista do Museu Paulista, vol. XII (São Paulo, 1920).

1. Consonants.

	Bilabial	Labio-dental	Inter-dental	Alveolar	Alveolar palatal	Palatal	Velar	Glottal
Plosives	m_b p		n_d t				$k_{ŋ}$ g	
Nasals	m	ɱ	n			ñ	ŋ	
Lateral frictionless				l				
Fricatives		v	ð			y		h
Affricatives					$č^n$ $ž$			

The surd plosives are aspirated.

The voiced plosives are nasalized. As nasals they undergo the same phonetic changes as all other nasal consonants and, in a variant form [b^m, d^n and $g^{ŋ}$], may terminate syllables. Other plosives may not terminate syllables. Voiced plosives can be followed by l. The only consonant other than the plosives that can be followed by l is ŋ.

The sounds I have written b^m, d^n and $g^{ŋ}$ are nasally exploded variants of ^{m}b, ^{n}d and ^{ŋ}g. These consonants, in which the breath is actually released through the nose instead of through the mouth, occur only at the end of syllables.

ɱ, the labio-dental nasal is made by touching the upper teeth to the lower lip while the vocal cords are vibrating and the posterior nares are open. ɱ may be distinguished from v by the fact that in the former there is no friction between the lips and the teeth while in the latter there is no nasal resonance. While ɱ is a distinct phoneme, it is peculiar in distribution. If we eliminate the formative elements ɱa, ɱɒ and ɱai the occurrence of ɱ is reduced to very few words. Other peculiarities of ɱ is that, unlike the other members of the nasal series, it cannot occur terminally and it is the only consonant other than l that can occur after a plosive.

Between vowels l is often replaced by a single flapped r.

v becomes v^w before a rounded vowel.

ð represents th in English that. In Kaingang this sound begins as a surd but continues as a sonant.

2. Vowels.

Pure Vowels

	Close			Open	
Front	i	e	ɛ	ä	a
Central	ï		ö		
Back	u	ɤ o	ɔ		

Nasalized Vowels

Front	į	ɛ̨	ą
Central	į̈		
Back	ų	ǫ	ɔ̨

All the pure vowels except ɛ, i and e occur as diphthongs with ɪ or syllable final y.

ï is a very close vowel. The tongue is raised in the center to its maximum height and the front is depressed sharply but curls up a little at the sides. The resulting vowel resembles the unstressed vowel in continental Portuguese depois or elles, and also Uto-Aztecan ï.

ɤ most closely resembles the u in diphthongs such as occur in English sure and gourd. The Kaingang vowel, however, is a pure vowel although it is rather tense and spoken with a retracted tongue.

3. Phonetic changes. There are two large groups of consonantic changes in Kaingang: retrogressive and progressive. The retrogressive are the commonest and are purely mechanical. The progressive changes are in some instances dependent on grammatical processes.

RETROGRESSIVE CHANGES. Whenever any terminal nasal or nasalized consonant is followed by a voiceless sound, the nasal or nasalized consonant disappears or changes to a stop in which the tongue occupies the same position as in the original consonant. Thus the bilabial nasals become bilabial stops; the interdental nasals become interdental stops; the velar nasal becomes a velar stop; and the palatal nasals become palatal stops.[2] I have indicated these sounds in Kaingang by P, T, and K.

[2] The same is true of the nasalized series.

Since ð is a mixture of voiceless and voiced friction the nasals behave before it as if it were a surd.

m and b^m change to P before t, k, ð, and č. When followed by p, only the aspirated p is articulated.

n and d^n change to T before p, k, and ð. When followed by t, only the aspirated t is articulated. When followed by č, the T is often assimilated.

ŋ and $g^ŋ$ change to K before p, t, ð and č. Before k only the aspirated k is articulated.

In ordinary conversation if the speech becomes slow or if there is a pause for phrasing the changes may not take place. Since all Kaingang syllables must end in either a vowel or in a nasal consonant these changes are encountered with great frequency.

PROGRESSIVE CHANGES. When y is preceded by a nasal consonant or by a nasalized consonant it changes to ž.

When M is preceded by m or b^m it drops out.

The following phonetic changes are grammatically determined. When the verb ked^n is preceded by a nasal consonant or by a nasalized consonant, the k becomes ^ŋg. The connective kų frequently becomes $^ŋgų$ after ŋ and $g^ŋ$. A large class of verbs ending in ke sometimes change the k to ^ŋg if the preceding syllable ends in a nasal consonant or in a nasalized consonant. Since possessive pronouns always directly precede the thing possessed the ŋ in the first person plural possessive pronoun aŋ changes an initial k in a following word to ^ŋg. Only one ŋ is pronounced in this case.

There is a direct proportion between the frequency distribution of the nasal-stop series and their activity within the phonetic structure. Surd stops convert nasals into stops and nasals convert surd stops into nasals. Nine tenths of the consonantic changes occur in these two groups of consonants or by the action of these two groups. M, v, l, y, and h, however, are inert. We thus have the following situation in regard to the consonants: stops and nasals combined account for the majority of the consonants and for nine tenths of the consonantic changes. They also occur with five times the frequency of M, v, l, y, h, and $^ŋž$ (another inert consonant) combined.

The first person singular pronoun ɛŋ changes to e before voiceless sounds and ð. But when in contact with t it changes the t to č. Thus when ɛŋ is followed by the instrumental tǫ we get ečǫ. The equation is ɛŋ + tǫ = e + tǫ = ečǫ. ɛŋ changes the n in most nouns beginning with n to ñ. Certain nouns beginning with ^{n}d change to ž after ɛŋ.

In Kaingang there are two kinds of diphthongs, those that are stable units and those that spring into existence in response to phonetic laws. Whenever a vowel precedes č it becomes a diphthong with ι. This is a mechanical phenomenon. When a vowel precedes the element ke it becomes a diphthong with ι.

The vowel preceding ŋ becomes nasalized when ŋ changes to K.

m, n, and ñ may be converted into nasally exploded plosives when they occur immediately after an accented syllable.

4. Morphology.

REDUPLICATION is an important process in Kaingang. It expresses repeated action and gives nominal implication to verbal expressions. Some onomatopoeia is expressed by reduplication, and there seem to be a few frozen reduplicated forms, which are unanalyzable at present.

WORD PATTERNS. The commonest word patterns in Kaingang are cvcv (35%); cv (14%); cvc (13%); cvcvc (12%); cvccv (12%); ccv (5%), and cvcvcv (5%). It will thus be seen that about 90% of Kaingang words are monosyllabic or bisyllabic and about 5% are trisyllabic.

This, however, is merely the absolute pattern of Kaingang words, for although nouns (i.e. names of manufactured objects, natural phenomena, plants, animals, body parts) are stable, verbs change their form

depending on sentence structure. When verbs are followed by the predicating particle MA they have a different form from when they are followed by the verbal particle mu. Thus verbs change in the following ways:

MA	mu
cv	cvc
cvcv	cvcvc
cvcvc	cvcv or cvcvc
cvc	cvc or cv

Under these conditions the vowels also often change.

Some rather complex words also occur in Kaingang, and these are probably compounds; examples are: pɔɪ^{m}bö^{ŋ}gɛ'lɛ *a tree*, klaplʊplu'yu *a kind of bamboo*, panvalʊ' *a tree*, ^{m}blu'lu^{ŋ}gɛ'lɛ *a tree*, taŋ^{n}dalo'lo *a bird*, ðа^{n}dʊ'yu^{ŋ}gɔ' *daddy long-legs*.

In the case of nouns the minimum context is noun plus MA; in the case of verbs the minimum context is one containing a subject and mu or MA in addition to the verb. None of the words uncovered by linguistic analysis occurs in native speech outside of these contexts.

GRAMMATICAL PARTICLES. One of the difficulties of Kaingang is the ubiquitous grammatical particles and predicating elements. There are 12 of these, and they perform such a variety of functions that they form a third to a half of the elements in any one sentence. These elements express case, instrumentality, emphasis, location, number, and time; and also perform subordinating functions.

5. Grammatical categories.

Kaingang has no extended gender categories[3] and no concepts of definiteness or indefiniteness. Number is expressed in the verb but is not an obligatory category. Only specialized temporal ideas receive expression. These are the definite and indefinite future, the conditional[4] and the contingent. Such temporal ideas, however, do not constitute obligatory categories, and in the average Kaingang sentence time must be inferred from the context.

Case is an obligatory category and may always be known either from an element's position in the sentence or from the use of grammatical particles.

6. Sentence types. There are two basic sentence types in Kaingang: (1) subject—possessive—object—modifiers—verb; (2) possessive — object — modifiers — verb — subject. Other syntactic forms do occur, but they are specialized to certain conditions. Subordination is brought about by the use of grammatical particles.

7. Verb structure. Particles, pronouns, and verbs are so closely associated morphologically that it is not possible to discuss one without the other. I shall, however, begin with the verb as constituting one of the simplest approaches to problems of grammatical structure.

Kaingang verbs must be considered from two points of view: (1) variation of form as conditioned by the particles mu and MA; (2) variation of identity as conditioned by number.

7.1. There are two large classes of verbs, those that are the same whether they are followed by MA or mu, and those that have different forms for each of these elements.

The following are some examples of verbs that remain the same whether they are followed by MA or by mu: ^{n}däñ *to cook*, ud^{n} *to arrange*, pɔ *to be born*, kɔma' *to fear*, ^{m}blo *to swim*, väd^{n} *to be first*, kutu'd^{n} *to forget*, päða'b^{m} *to suckle a child*, päðɔ' *for a child to suckle*.

Examples of verbs that have different forms for MA and mu; the form before MA

[3] There is, however, a third person feminine pronoun which is also frequently suffixed to female personal names, to the word for woman, and to kinship terms in order to make them feminine.

[4] The precise morphological expression of the conditional is rare. Generally conditional ideas are expressed by syntactic devices.

is cited first, then the mu form: kɔna′, kɔna′ŋ *to search*; ama′, ama′ŋ *to listen*; aklä′d^{n}, aklä′g^{ŋ} *to think*; pe, päg^{ŋ} *to make beer*; ve, väg^{ŋ} *to see*; plɔ, plag^{ŋ} *to bite*; ðɔ, ðag^{ŋ} *to wash clothes*; tɛ′lɛ, tī *to die*; tad^{n}, tv *to tell*; vud^{n}, vag^{ŋ} *to take*.

These changes are quite irregular. Among those verbs for which I have sufficient data I list 25 different types of change. There are 10 verbs that change terminal e in the MA form to äg^{ŋ} in the mu form; 5 that change terminal a in the MA form to aŋ in the mu form; 4 that change ɔ in the MA form to ag^{ŋ} in the mu form, and 4 that change i in the MA form to ig^{ŋ} in the mu form. There are two types of change to which belong 3 verbs each; 2 to which belong 2 verbs each, and 17 types to which belong only 1 verb. No similarity of meaning unites the verbs that experience the same change.

When a sentence has syntactical form (1) the verb is followed by MA or mu; mu can occur only in verbal constructions. In simple definitive sentences like čī MA *it is a rattle*, nouns are always followed by MA. This suggests that verbs followed by MA are conceptually related to nouns. Verbal constructions with MA, however, mean the same as those with mu and are used interchangeably in native speech.

The principal difference between MA and mu constructions is that mu is generally used in narratives while MA is not.

7.2. Kaingang often expresses plurality in the verb. When an INTRANSITIVE verb has a plural SUBJECT, or when a TRANSITIVE verb has a plural OBJECT, plurality may be expressed in the verb by one of three devices: (1) by complete change of verb; (2) by change of formal verbal prefix; (3) by addition to the verb of a prefix expressing plurality. Both transitive and intransitive verbs are found in all three classes.

In general the plural form of the transitive verb must be used as long as the object is plural. Conversely, even if a number of people give one object, the singular form of the verb is used.

Class (1); the first form cited is singular, the second is plural: pänų′, pid^{n} *to shoot and hit*; kuta′, vö′lö *to fall*; nɛm, vid^{n} *to give*; tavi′, yu′lu *to arrive*; ðvd^{n}, lɛŋ *to throw*; tɛŋ, mų *to go*; tɛ′lɛ, kökta′ *to die*; kīb^{m}, kle *to cut*.

Class (2), verbs that change the formal prefix in the plural: päðɔ′, pekðɔ′ *for a woman to nurse a child*; päða′, pekða′ *for a child to nurse*; päyu′, pig^{ŋ}žu′ *to hide an object*; päðï′d^{n}, pikði′d^{n} *to chop out a bee-hive*; taðï′d^{n}, yaðï′d^{n} *to ascend*; ðayö′d^{n}, ðaŋžö′d^{n} *to hang up*; kag^{ŋ}mɛ′, kug^{ŋ}mɛ′ *to capture*; kučɛ′, kugžɛ′ *to pinch*; kɔða′d^{n}, kökða′d^{n} *to strip embira bark*; kɔya′b^{m}, kög^{ŋ}ža′b^{m} *to requite*; kuya′d^{n}, kögža′d^{n} *to stretch*; kuyɛ′lɛ, kag^{ŋ}žɛ′lɛ *to be hungry*; kɔ^{ŋ}gɔ′, kög^{ŋ}^{ŋ}gɔ′ *to be sick*.

Class (3), verbs that form the plural by the addition of a prefix to the stem: pɔ, kökpɔ′ *to be born*; pun, köpu′n *to burn*; nde, kög^{ŋ}^{n}de *to roast in a pit*; lɛ′lɛ, kög^{ŋ}lɛ′lɛ *to become alive*; pug, kīkpu′g^{ŋ} *to put the head on an arrow or lance*; ðīd^{n} kīkðī′d^{n} *to butcher*. The prefixes are not freely moving elements; the only one that seems to move with freedom is kög^{ŋ}-.

7.3. Associated with MA and mu forms of the verb are two partially overlapping sets of pronouns. Both sets may be used with any type of verb or verb form. The MA pronouns are identical with the independent pronouns. When the independent pronouns occur only with MA they are accompanied by the emphatic ha; when they occur in longer sentences the ha is generally dropped.

It is I	ɛŋ ha′MA
It is we (*inclusive and exclusive*)	aŋ ha′MA
It is you (*singular and plural*)	a ha′MA
It is 3rd person non-feminine	ti ha′MA
It is she	ði ha′MA
It is they	ɔg^{ŋ} ha′MA

These pronouns, minus MA, are used as subjects, as objects and as possessive pronouns. Third person ɛ is related to the MA pronouns;

ɛ marks feminine, non-feminine, singular and plural; it may never begin a sentence.

In mu sentences the pronominal structure changes. When a mu sentence has syntactical form (2) a different set of pronouns is employed. This set partially overlaps the independent series but contains a number of new elements.

I	nų
we (*inclusive and exclusive*)	na
you (*singular and plural*)	ma
3rd person non-feminine	tą
she	ði
they	ɔg^{0}

These pronouns may never be objects. In mu sentences with syntactical form (1), the first person singular and plural and the second person must be preceded by the forms derived from the independent pronouns. Syntactical form (2) can occur only with the mu pronouns.

We may now examine the entire series in context.

(1) MA construction:

a′ tǫ ti pänų′ MA [*you instrumental him shoot* MA] = *you shot him* or *you are shooting him.*

(2) mu construction, syntactic form (1).

ɛŋ ha′ nų ti pänų′ mu [*I* ha *I him shoot* mu]; a ha′ ma ti pänų′ mu [*you* ha *you him shoot* mu]; ti ha′ MU ti panų′ mu [*he . . .*]; ði ha′ MU ti pänų′ mu [*she . . .*]; aŋ ha′ na ti pänų′ mu [*we . . .*]; ɔg^{0} ha′ MU ti pänų′ mu [*they . . .*]. These sentences with mu mean the same as the sentences with MA.

(3) Syntactic form (2).

ti pänų′ nų mu [*him shoot I* mu]; ti pänų′ ma mu [*him shoot you* mu]; ti pänų′ MU tą mu [. . . *he . . .*]; ti pänų′ MU ði mu [. . . *she . . .*]; ti pi′d^{n5} na mu [. . . *we . . .*]; ti pi′d^{n} MU ɔg^{0} mu [. . . *they . . .*].

7.4. The element MU can be defined only by distribution. In syntactical form (1) with mu it must follow the subject in the third person, and in syntactic form (2) it precedes it. MU has a wider function as a subordinating conjunction, when it follows the principal clause.

7.5. ha functions both as an emphatic particle and as a relative. In complex sentences it may refer to a preceding clause, and combined with MU or ki (a locative) it may be used as a subordinating conjunction.

7.6. When a TRANSITIVE verb occurs with MA and the subject is expressed, the subject must be followed by tǫ. tǫ occurs only occasionally with intransitive verbs; and it never occurs where the subject is not expressed. A verbal construction occurs in Kaingang which is translatable by the English passive: ti pänų′MA *he was shot.* Structurally the sentence is identical with ti čĩ′MA *it is his rattle.* From a morphological point of view, therefore, a reasonable translation of ti pänų′MA is *it is his shooting.* Actually what we have in ti pänų′MA is the statement of an action in which the actor (i.e. the instrument) is not expressed. I shall call this type of verbal construction non-subjective.

Intransitive verbs generally occur without tǫ. ti ^{m}blo′MA *he is swimming* (or *he swam*). The function of tǫ as an instrumental is clearly seen in a sentence like: ti tǫ klaŋža′ tɛ tǫ ti ta′ya MA *he killed him with a knife.* tǫ functions the same way in mu constructions: ti ha′MU klaŋža′ tɛ tǫ ti ta′ya mu.

Like most grammatical elements in Kaingang, however, tǫ performs a variety of functions. It not only indicates the instrument or agent of an action but also the contents of an object: ti ha tǫ klög^{0}nɛ′ tǫ ñakðɔ′ MA *he defecated meat*; ði ha′ tǫ ðõk tǫ kula′b^{m}a^{6} *she made pine nut soup.*

tǫ also appears wherever any doubt might arise as to what is being done with a manipulated object: . . . kų nų su′^{m}bu tɛ tǫ nɛna′ ki vid^{n}′ mu *then I put the shot on top* [*of the powder*]. This sentence refers to the

[5] This is the plural form of the verb. It is used here because the conception in the informant's mind was that many missiles were being shot.

[6] The M in MA has dropped out under the influence of the preceding b^{m}.

loading of a cartridge. If the tǫ were omitted the sentence would mean that something was put on the shot's surface.

Whenever the syntactical form is such that doubt might arise as to whether a thing is possessor or actor (i.e. agent), tǫ is employed to clarify the situation. Hence it may even occur at times with an intransitive verb: ti ha′tǫ kute′ lɔ tɛŋ MA [*he* ha′ tǫ *forest through go* MA] *he is walking through the forest.* If the tǫ were omitted the sentence would mean *his forest was traversed.* Where the intransitive verb has no modifiers, however, the tǫ is frequently omitted: e čɛŋ MA[7] *I am* (or *was*) *going.*

Sometimes two sentences are juxtaposed in such a way that the second sentence describes the effect produced by the events described in the first sentence. In such a case the tǫ in the second sentence (which describes the effect) refers to the event (i.e. cause) in the first sentence. The following is taken from a story in which a tiger attacks a man at night; other people hear the noise, and because of it imagine that some of their vendetta enemies have come to attack them: ų tɛ ɔg$^{\underline{0}}$ MV tǫ aŋ lɛ′lɛ^{s} utpą′ had$^{\underline{n}}$ ɔz$^{\underline{0}}$ mu *the others, because of it* [*the noise*] *imagined it was another group of our own people.*

7.7. The element tɛ which has appeared in a number of the preceding sentences occurs in a wide variety of constructions. It occurs regularly after nominal subjects, direct and indirect objects of verbs, and objects of postpositions.

The MA forms of the verb, under certain conditions, appear as the objects of other verbs: . . . kų MV tą MEK tɛ katɛ′ŋ tɛ maŋ mu *then he heard the tiger coming.* The sentence actually has the form *then he heard the tiger's coming.* katɛ′ŋ *to come* precedes the verb maŋ and thus occupies the position of an object of a transitive verb. In addition it is followed by tɛ which follows nominal objects. Finally katɛ′ŋ is the MA form; katɛ′ is the mu form.

The same situation appears in: ɛŋ ha′ nų karo′sa tavi′ tɛ väg$^{\underline{0}}$ mu *I saw the wagon arrive.* The syntactic position of tavi′ is that of an object of a transitive verb, and tɛ follows tavi′ just as it follows nominal objects. tavi′ is the MA form of the verb; tavi′g$^{\underline{0}}$ the mu form. In addition the position of karo′ sa indicates its function as a possessive noun. Thus literally translated the sentence is *I saw the wagon's arrival.*

tɛ functions as a subordinating element together with the connective kų; characteristically it takes the MA form of the verb: ɛ^{9} tǫ vyo′lo ve′ tɛ kų . . . *he saw the tapir and then . . . .*

tɛ functions also as a predicating element, but whereas MA is reserved for nouns and verbs, tɛ is reserved for conditions and qualities: ti tv′yv tɛ *it is moist*; kaiñvï′ tɛ *it is light in weight*; eŋ hö tɛ *I am better* (i.e. *convalescing*).

In this sense it accompanies the negative: kï tų′ nų tɛ *I did not call*; MAK tų′ nų tɛ *I do not know.*

tɛ occurs in a great variety of constructions; besides the foregoing, we get a form identical to syntactical form (2): ðoıpa′ MV tą tɛ *it is four-cornered*; tï MV tą mu *he died*; $^{\underline{0}}$gɔ′yo tɛ MV u′ tɛ *the water is good*; ti ha′ MV tï′ mu *he died.*

The extent to which the mu pronouns are employed with tɛ is striking: a ha′ ma klög$^{\underline{0}}$nɛ′ ko vai′ kų ma tɛ *you never eat meat.*

7.8. tɛ is closely related to the predicating elements nɛ, nɔ, ñaŋ, and čɔ, but whereas tɛ is untranslatable, nɛ means *to sit*, nɔ *to lie*, and ñaŋ *to stand*; čɔ predicates with respect to long objects. The close relation of these elements will become clearer if we examine the examples below in which tɛ,

[7] The phonetic changes involved here are described under Progressive Changes.

[8] aŋlɛ̨′ lɛ, literally *our alive, our to be alive* or *our life* means *our people.* When followed by UTPĄ it means *another group of our own people.*

[9] Refers to the subject of a preceding sentence or clause.

nɛ, nɔ, ñaŋ, and čɔ are used in parallel constructions. Each number in the tɛ group is to be compared with its corresponding number in the other groups.

Examples with tɛ: (1) ta mɛ′ mʊ čɔ′ tɛ *there is a cliff there;* (2) kupli′ tą tɛ *it is white*; (3) ᵑgɔ′yo tɛ mʊ u′ tɛ *the water is good*; (4) kaıñvi′ tɛ *it is light in weight*; (5) maðï′ yɔᵑgï′ʀ kų tą tɛ *he weaves very much*; (6) a ha ma klögᵑ nɛ′ ko vaı′ kų ma tɛ *you never eat meat.*

Examples with nɛ: (1) yuᵑgu′gᵑ ðaʀka′ ha mʊ nɛ *the hawk's door is there*; (2) čï mʊ tą nɛ *he is brown*; (3) ñɛ′lɛ tɛ u′ nɛ *a pretty child*; (6) tą mʊ maıⁿžɔgᵑⁿdɛ′ʀ kų nɛ *he is insane.*

Examples with nɔ: (1) tɔʀtö′ mʊ apɔ′ nɔ *there is a farm there*; (2) ⁿde nɔ mʊ a naʀkï ka′ tɛ ka kuču′gᵑ nɔ *what is that red thing in your mouth*; (4) vʊ mʊ tą nɔ *it is loose.*

Examples with ñaŋ (1) ɛn ha mʊ′ ñaŋ *there is a house*, or *there is the house*; (5) ᵐblo yɔᵑgï′ʀ kų tą ñaŋ *he swims very much*; (6) tiha mʊ ᵐblo vaı′ kų ñaŋ *he never swims.*

Examples with čɔ: (1) ᵑgɔ′yo mʊ ta′ka čɔ *the stream is there.*

nɛ, nɔ, and ñaŋ are also similar in that they form verbal modes; tɛ is used to form the definite future, and generally requires the mu form of the verb: kula′gᵑ mʊ tą katäle′ tɛ *to-morrow he will come down* [*the river*]; kɔlɔkų tɔgᵑlɔ mų′ tɛ *later they will go in that direction*; kutï′gᵑ gų maıᵑglä′ tɛ *there will be dancing at night.*

nɛ, nɔ, and ñaŋ indicate continued action and take the mu form of the transitive verb, but the ma form of the intransitive verb: . . . . kų tą väg′ᵑ nɛ *then he was watching*; . . . . ðï tɛ′lɛ nɔ . . . . *she lay dying*; päðɔ′ mʊ ðï ñaŋ *she* (*the infant*) *was nursing.*

7.9. Another predicating element is kɔ. Unlike tɛ, nɛ, nɔ, ña, and čɔ it can take only the ma pronouns. It occurs frequently with expressions of sensation and feeling but never with transitive verbs: (1) e čɛʀ čv′lvkɔ *I want to go*; (2) e kɔᵑgɔ′ kɔ *I am sick*; (3) lǫ kɔ *it is hot*; (4) ðu′lu kɔ *it is sour.*

There are a number of cases in which words not expressive of sensation or feeling occur with kɔ: (5) kaʀðä′lä kɔ *the forest is wet*; (6) tɔ′lɔ kɔ *it is hard*; (7) mɛ ɛ tɛ kaᵐbö′ kɔ *there were many houses there.*

Numbers (1), (2), and (7) occur also with elements other than kɔ. (1) and (2) occur with ma, and (7) occurs with tɛ. It is to be observed that kɔ predicates for the same general type of concept as do tɛ, nɔ, and ñaŋ.

7.10. Temporal modes are expressed also by certain specialized particles: yä expresses the indefinite future and va . . . . hɔ expresses the future contingent.

In constructions with mu pronouns, yä immediately follows the pronoun as well as the verb; whenever yä follows the verb it takes the mu form: e čǫ ti ve′ kų a mǫ tv′ yä [*I instrumental* ti *see connective you dative tell* yä] *when I see him I will tell you.*

Because of its indefinite character yä appears in questions regarding the future: me′ya[10] dia ki′ ma yä tɛ′ yä *will you go at midday*; hali′ ma yä kä′ yä *and later what will you do?*

The particles va . . . . hɔ take the mu pronouns and the mu form or the verb. When the sentence or clause begins with the pronoun, va precedes the pronoun; when some other word begins the sentence or clause va follows the pronoun. hɔ always terminates the sentence and immediately follows the verb: ðï mʊ va ko ña halike kų ðï tädⁿ hɔ [*she* mʊ va *eat* ña *thus* kų ðï *kill-from-the-inside* hɔ] *if she continues to eat it she will die of it in just the same way*; a tǫ e čo ya′ʀ kų nų a toñu′ tɛ a to[11] nų va ñu′ hɔ *if you sing about me I'll be angry with you,—I'll be angry with you* [the informant

[10] Obviously derived from the Portuguese meio dia.

[11] The analysis of the Kaingang word for anger has been given in AA 38.250–256 (1935). In this sentence it will be seen that the postposition to is separable from the element ñu.

changed from the definite future in the second clause to the contingent in the third]; hañaŋlɔ′ ma va aŋ žu′lu kų aŋ žɔ$^{\text{ŋ}}$glad$^{\text{n}}$ kų e čẹ $^{\text{m}}$bɔ könatɛ′ kų ma va e kɔma′ŋ hɔ *however, when we arrive and dance and I carry [this] as I walk about, then you will fear me.*

The distinction between the indefinite future and the contingent is by no means rigorously observed. The following sentence, the direct response to the one above, uses yä instead of va . . . . hɔ: kų yä nų aŋ žu′lu kų aŋ žɔgla′ᴛ kų a tẹ $^{\text{m}}$bɔ könatɛ′ lɔ yä nų′ a kɔma′ŋ yä *so, when we arrive and dance and you walk about carrying [it], then I'll be afraid of you.*

8. Another large and important group of elements in Kaingang is the postpositions. They express principally locative ideas, but they also express case, and function as subordinating elements.

8.1. ki and ka are locatives. In this sense they are translatable in some instances by *in, inside* or *on*: . . . . hañaŋlɔ tą kɔðī′ ki nɛ . . . . *but it was inside a stone*; kų tą $^{\text{m}}$blu′lu ka ti čɔ′ tɛ kī′b$^{\text{m}}$ mu *then he cut the cipó from which he was hanging*; ti taı ya′ tɛ tẹ aŋglad$^{\text{n}}$ ža tɛ ka′ nɔ′ *the place where he was killed was the dance ground*; $^{\text{ŋ}}$gɔ ki pa′ŋ ka$^{\text{ŋ}}$glɔ′d$^{\text{n}}$ mu . . . . *shoot into the earth trying it out*; kų ᴍᴠ ɔg$^{\text{ŋ}}$ kläᵑñ tɛ ki vö′lö mu *then they fell into the pit*; kų kɔ tẹ ka ðaˀŋ mu *then the wedges are put in*; ku′lu ka′ ti yi′ ᴍᴀ *he was laid on a blanket.*

ka and ki frequently occur alone. In these cases they also function as locatives but approach in meaning English *here* and *there*: ayv′ ka ma nɛ *Ayu, are you there*; ɛŋ žo′ tɛ ᴍᴠ ka nɔ *my arrow was there.*

Kaingang does not distinguish formally between position in space and position in time. Hence ki and ka function as temporal locatives, frequently as subordinating elements: nv′lv läŋle′ ų tẹ halike′ ki′ ᴍᴠðī tī′ mu *she died in four days.* Literally this is: *two sleeps and others like them, and then she died.*[12]

[12] The Kaingang have no true numbers.

Some verbs regularly occur with locatives; these verbs express related psychological states: ki ᴍaı$^{\text{m}}$bikti′ *to dream about something*; ki ᴍaɛ′ *to desire very much*; ki aklä′d$^{\text{n}}$ *to remember*; ki kutu′d$^{\text{n}}$ *to forget.*

8.2. The postposition, to, has widely varying functions. It is best defined as a directive. Like ki and ka it frequently occurs alone.

to indicates the direction of motion: kv to′ ᴍᴠ tą kuta′ mu *he fell from a vine*; . . . . tɛ kų ɔg$^{\text{n}}$ na′li to mų′ mu . . . . *then they all went in that direction*; to katɛ′ŋ *come here!*

As a phase of its directive functions, to indicates causes: kī′yī tɛ ᴍᴠ to mv tą ɔg$^{\text{ŋ}}$ žɔ$^{\text{ŋ}}$gaᴋta′d$^{\text{n}}$ mu *the owl pitied them because of it*; $^{\text{n}}$de′ to a$^{\text{ŋ}}$gɛ′lɛmɛŋ nų[13] mu *what is the cause of the noise?*

to can also mean against: hañaŋlɔ ɔg$^{\text{ŋ}}$ ɔg$^{\text{ŋ}}$ža′ tɛ to $^{\text{m}}$blö′yö käke mu *but their beaks would always break against it [the rock].*

In this sense it occurs in those situations where we would say *on* in English: $^{\text{n}}$däᴛ kīki′ tẹ ᴍᴠ tą to vi′d$^{\text{n}}$ mu *he put feathers all over it*; ɛŋ naᴋðɔ′ ᴍᴠ e čo[14] ŋlɛ tɛ e köpe′ lɔ *I am all smeared over with my faeces,—wash me!*

Certain verbs always occur with to: to aı′n$^{\text{ŋ}}$ge *to be ashamed (of something)*; to ñu′ *to be angry (because of something; with someone)*; to aklä′d$^{\text{n}}$ *to think (about something)*; to vaı′ *to stop doing something*; to ñɛpǫ′ *to order (to do something)*.

8.3. The postposition yo or ðo[15] means *in front of, before*, or *in preparation for.* When used with reference to food or fire it means *in anticipation of consumption* or *use by*: kų ᴍᴠðı ti yo katɛ′ mu *then she came back before him*; ðı yo ɔg$^{\text{ŋ}}$ nɔ ᴍᴀ *they were [born] before her*; ɛŋ žo′ $^{\text{n}}$däd$^{\text{n}}$ $^{\text{ŋ}}$gla′ *roast something for me!*

[13] The occurrence of nų before ᴍᴀ or mu is very common in interrogative sentences.

[14] t has become č under the influence of e.

[15] Certain elements occur with y when they are preceded by the element they modify and with ð when they are not.

8.4. The postposition yä or ðä has very much the same implications as *para* in Portuguese and Spanish: ti ha tǫ ɛ ^{n}do yä kɔ kaɪčid^{n} kïb^{m} yä tɛŋ ma *he went to cut a small stick for his arrow*; kų tą ði ^{m}blä ti yä plą'la ni tą hu'rke mu *then he wept with her for him a long time and stopped*; tɔktε yä' maɪkɔktɔ tų' tε *there is no remedy for that*; ɛŋ ha' e čǫ a ñan a yä' tu ma *I am carrying your food for you*; kų mv tą yä maɪčɛ'yɛ nɛŋvi'g^{0} mu *then he prepares iron for [them] [the arrow]*.

8.5. The postposition mǫ combined with the independent pronouns expresses the dative and indirect object. In the first person singular mǫ has an alternative form, ñǫ: naŋlɔ' ɔg^{0} mv läŋžï'lï tε mǫ ti mǫ nɛp tų' ɔk tε *however, they gave nothing to the* läŋžï'lï *[a bird]*; kuðu'g^{0} ɛŋ ñǫ ti mǫ mǫk päta' *Kuthug, chop out a bee-hive for me for him*; . . . . tε kų mv tą ų' tε ɔg^{0} mǫ mv tą tv' mu . . . . *and so he told it to the others.*

8.6. Another element of wide use is lɔ. It has a limited function as a postposition meaning *through* or *along*, but functions much more widely as a conjunction.

Examples of lɔ as a postposition: ti ha' tǫ kute' lɔ tɛŋ ma *he is walking through the forest*; ti ha' tǫ taɪ lɔ taðï'lï ke ma *he is about to ascend the coconut tree.*

Examples of lɔ as a conjunction: ti ha maɪ^{n}zï lɔ ti kuta' ma *he laughed until he fell over*; tɔktö' nų kɔɪ^{0}gö ų' ɔg^{0} väg^{0} mu lɔ mv ɔg^{0} u' nɔ^{n}dε[16] *there I saw some other men and they were good.*

8.7. Other postpositions are: ^{n}dv *behind* or *after*, la *beside*, yï *around*, *for the sake of*, klam *under*, mε *distributive.*

9. The imperative has not been completely worked out. Imperative forms are sometimes followed by the element lɔ, as a sign of the imperative, but frequently they are not; the forms with lɔ are more emphatic. Some verbs take the ma form and some the mu form in the imperative; others have a special form, and still others have two special forms.

	ma form	mu form	Imperative
to die	tɛ'lɛ	tï	tï'lɔ
to seize	kag^{ŋ}mɛ'	kag^{ŋ}mɛ'^{ŋ}	kag^{ŋ}mɛ'lɔ
to lead	pänvɛ'lɛ	päle'	pänva'
to kill	^{m}bad^{n}	^{m}bag^{ŋ}	^{m}bɔ'lɔ
to take	vud^{n}	vag^{ŋ}	vɔ'lɔ
to thrust into	nεðä'd^{n}	nεte'	nεtą'
to stop	hu'rke	hurke	hu'rkä

10. The reflexive for all persons is maɪ: ɛŋ maɪ ča'ya[17] ma *I killed myself*; kų mv ta maɪ klam nε' mu *then he placed it under himself.*

Certain verbs must take maɪ as a first syllable when they have no direct object: kų mv ɔk tǫ maɪkav'g^{0} mu *then they were frightened* [compare: e kav'g^{0} ma mu *you frightened me*]; ti tǫ maɪko yɔ^{0}gï' ma *he has intercourse a great deal* [compare: kų mv kɔɪ^{0}gök tε vv^{0}gɔ' tε ka ɛ plų tε ko vaɪ' kų tε *so during the time of the* vv^{0}gɔ' *men refrain from cohabiting with their wives*]; kų ɔg^{0} mv maɪka^{0}glɔ'd^{n} mu *then they imitated* [compare: kų mv ɔg^{0} paŋ ka^{0}glɔ'd^{n} mu *then they tried out shooting*].

11. In verb combination the principal verb follows the subsidiary verb and the latter is treated as an object. Sometimes the subsidiary verbs take the ma form and sometimes the mu form. Although the most freely combining verbs are the verbs of motion, other types of combination occur: patkle' tε mv ti kɔna'k tε' mu *Patkle went to look for him*; kų mv ɔg^{0} lɛŋ ka^{0}glɔ'd^{n} mu *then they tried throwing them.*

12. Verbs that have ma and mu forms take the mu form in the future and contingent. The verb ked^{n}, however, has special forms: ked^{n} (for ma), ke (for mu), kä (for yä, indef. fut.), ke (for tε, def. fut.), ke (for va, hɔ). This verb also has the form kä before käke, a reduplicated form of the verb ked^{n}. käke means *to do habitually* or *customarily.*

[16] Plural of nε.

[17] maɪ affects t in the same way as e does.

The irregularity of ked^{n} appears in idiomatic constructions: tɔg^{ŋ}li′ ɔk tǫ ked^{n} ^{ŋ}gäke mu *this is what they do customarily* [*when they make a rattle*]. At the same time the informant demonstrates the technique of making a rattle. The same idea is expressed in a different construction: tɔg^{ŋ}li′ ɔk tǫ ke′ mu *this is what they do* [*when they make a fence*]. What makes the first sentence particularly irregular is that käke always requires the mu form of the verb.

The mu form of the verb appears under expected conditions in: tɔg^{ŋ}li′ tą ke′ mu *that is what he* (*the woodpecker*) *does.*

In the following, ked^{n} appears as kä before käke:[18] tɔg^{ŋ}li′ mv tą kä′ käke′ mu *that is what he does habitually.*

ked^{n} is used also in expressions dealing with health: ha′li ti tǫ ke′ nų ma *what is the matter with him?* Under different circumstances this sentence may also mean *what is he doing?*

ked^{n} functions idiomatically as an element indicating transition: a ha ma a ^{m}bäg^{ŋ} a ^{m}bäg^{ŋ} mbö′g^{n} ^{m}bɔ tɛ′ŋ ke′ kų tą to katɛ′ mu *"You, take your axe, your big axe." Then* [*when he heard this*] *he came in that direction;* . . . . ke kų ɛŋ vï′yï vu′t kų akläk tɛ′ŋ *alright, take my bow and go hunting.*

ked^{n} also indicates direct quotations and occurs directly after them: mǫk tɛ väk tų′ nų tɛ ke′ mv tą mu *"I did not see the honey," he said.*

There is a large class of verbs that end in ke. These are compounds with ked^{n}. The striking feature of these verbs is that none of them may take an object. When the meaning of the sentence is such that we would expect the verb to appear with an object, syntactic devices are introduced to prevent it. These devices are the instrumental tǫ and the locative ka. In some cases the object is converted into a subject by the use of tǫ, as in the following example: a kɔna′ tǫ ^{m}bli′tke lɔ *open your eyes!* Literally, *open with your eyes.*

[18] This frozen reduplicated form is frequently used in this way.

In the following example tǫ is combined with ka to produce a syntactically intransitive construction: . . . . mv tą tava′ tɛ ti ka tǫ lv′pke mu . . . . *he struck Tava.* Literally, *he struck on Tava.*

13. The simplest form of reduplication is the repetition of the whole verb or part of it; this expresses repeated action: ɛŋ ha′ e čǫ e pa′n yud^{n}žu′d^{n} ma *I flexed and reflexed my leg* (from yud^{n} *to extend*); ti ha laŋla′^{ŋ} ma *he jumped many times* (from laŋ *to jump*); Other examples are: čäg^{n} *to sew,* čäkčäg^{ŋ} *to sew many;* had^{n} *to weave a shirt,* had^{n}had^{n} *to weave many shirts.*

-ke verbs reduplicate the first syllable to express repeated action: e klɛ tǫ vät′ke ma *I nodded my head;* kačo′lo tɛ ^{m}bï tǫ vät-vätke′ ma *the dog is wagging its tail;* kɔ tǫ päı′ke ma *the tree bent;* kɔ tǫ paıpaıke′ ma *the trees bent.*

The following reduplicated forms seem to be truly onomatopoeic: vg^{ŋ}v′g^{ŋ} *a fish that makes a grunting sound;* tǫtǫ′l *thunder;* čukču′yu *diarrhea;* tųktų′ *to retch and belch.* No doubt *'ɛ''ɛ''ɛ'*ke[19] *to have a headache* is also onomatopoeic.

The following are frozen reduplicated forms: čakča′ *forked;* vï′vï *stupid;* kmųkmų′ *a fruit;* ^{ŋ}gïk^{ŋ}gïkðɔ′ *a tree.*

Sometimes the difference between nominal and verbal forms of the same idea are expressed by reduplication. In the examples I have, verbal forms ending in b^{m} reduplicate the principal vowel with v, and verbs ending in d^{n} reduplicate the principal vowel with l: löd^{n} *to make a mark or picture;* lö′lö *a picture;* yöd^{n} *to hang or tie up,* yö′lö *a cord or binding.*

The intransitive phase of a verb may be expressed in the same way: ti ha tǫ maıklɛpu′nžɔ′ tɛ ^{n}žïd^{n} ma *he extinguished the candle;* maıklɛpunžɔ′ tɛ ha ^{n}žï′lï ma *the candle went out.*

[19] Not infrequently the glottal plosive appears between an accented vowel and the one that precedes it. There is no glottal plosive phoneme.

REVIEWS

ABORIGINAL LINGUISTICS. Edited and published by Allan Farson. Tipografía Indígena. Cuernavaca, Morelos, Mexico. Volume I, Number 1, November 1947.

0. Aboriginal Linguistics is a new journal in the field of American linguistics. The appearance of a new journal of this kind merits special attention, I believe, not only because of the hitherto unrepresented data which it will make available, but also because each descriptive article published may serve as a basis for discussion of the technical frameworks of linguistic structuring. An editorial note to the first issue of Aboriginal Linguistics reads: "This publication is issued occasionally for the purpose of placing in permanent form the findings of students of the aboriginal languages, primarily of the Americas." The issue contains two articles, both of interest to descriptive linguists: George and Florence Cowan, Mazateco: Locational and Directional Morphemes (pp. 3–9); Donald S. Stark, Mixteco: Complex Phonemes (pp. 10–15). The remainder of this review will consider problems which arise relative to statements contained in these papers.

1.1. G. and F. Cowan state distributional contrasts for a group of 17 Mazateco "locational and directional" morphemes. These are classified under 7 "orders", with the distribution: 4, 3, 2, 4, 1, 2, 1. Each order contrasts with the others by a limitation on co-occurrence, i.e. the morphemes of each order occur with the morphemes of the other orders in such a way that no two orders co-occur exclusively with the same morphemes. Also no two morphemes of the same order co-occur. This may be restated as: morpheme class A, defined by the criteria which distinguish "locational and directional" morphemes, subdivided into 7 subclasses according to stated co-occurrence contrasts. Each subclass alternates by complementary distribution with each other subclass; each morpheme member of each subclass alternates with each morpheme of each other subclass. Thus A = A1 ~ A2 ~ A3 ~ A4 ~ A5 ~ A6 ~ A7, or A1–7(R), with R reading: expressed in complementary alternation. The specific contrasts in co-occurrence for each subclass would be stated. Subclasses are observed to belong to classes by similarities and to relate to each other by contrasts.

Whether the Mazateco problem be stated one way or another the distributional reference has the same scope. The classes set up represent only the features of contrast selected. It remains feasible not only to make further statements, involving the same morphemes according to other contrasts, but also to promulgate classes on the basis of much more complex distributional contrasts. At the same time, once given a class A1–7, it is obviously possible to express any other distributional interrelationships, not included in the definition of A1–7, as correlations among the member morphemes of A1–7.

The Cowan article contains illustrative sequences for the 7 "orders", a phoneme list for Mazateco, and a semantic chart showing the kinds of space relationships denoted by the morphemes.

1.2. The restatement (**1.1**) of the Mazateco problem relates to experimental definitions of linguistic units and relationships, which may be stated thus:

$$\mathrm{Rl} + \mathrm{En} \pm \mathrm{R2}\left\{\begin{matrix} \mathrm{P} = \int \mathrm{a} \\ \mathrm{S} = \mathrm{M} = \int \mathrm{A} \end{matrix}\right\} + \mathrm{C} = \mathrm{s}\ (\mathrm{Rl})$$

R1 = relationship 1 = a relationship of complementary distribution among stated units or unit classes, in reference to stated

environments; En = any stated environment type. E (any stated environment) might be regarded as implicit in the definition of R1, but En need not be, since it includes the feature of "type"; R2 = relationship 2 = a relationship of phonetic or phonemic similarity which limits the allophonic constituency of phonemes and the morphemic sequence constituency of morphemes; P = the corpus of contrasted phones; P = phoneme; a = allophones of P; S = the corpus of contrasted morphemic sequences, determined by a procedure of grouping together similar phoneme sequences beginning with relatively longer sequences and resulting in certain single phoneme morphemic sequences as a reflex of the procedure. Criteria for the selection of certain lengths of sequence over others would need to be stated in each case; M = morpheme; A = alternants of M; C = classes (phoneme ~ morpheme); s = subclasses of C.

The formula reads: relationship 1 in conjunction with a given environment type, with or without relationship 2, applied to P yields the phoneme, which may be stated as the sum of its allophones; the same applied to S (which exists by virtue of the operation on P) yields the morpheme, which may be stated as the sum of its alternants. Either resultant must appear in conjunction with C which may be stated as the sum of its subclasses (if the analysis includes subclasses) expressed as R1 alternants.

Thus the morpheme is obtained only by an investigation of morpheme alternants. The investigation of complementary distribution (R1) always produces both alternants and classes, the latter representing the environments by which the alternants were determined. Classes and alternants may be stated in reverse order for any given problem, but they remain mutually dependent.[1]

It should be noted that the En feature of the above formula may provide a theoretical basis for the handling of homonyms. If a morpheme class is defined according to certain limitations of distribution (= En) and this class contrasts with another relative to the same limitations, then the two classes alternate by R1, and two contrastive environment types result. Now if certain morphemes occur with both environment types, they may each be automatically split into two homonymous morphemes, one for membership in each class. An obvious alternative would be the establishment of a third class characterized by the combined distributions.

2.1. Stark lists the consonant clusters of Mixteco, sets up criteria limiting the phonetic sequence types which may be (by R1 in **1.2** above) represented phonemically, and proceeds to identify the phonemes of Mixteco according to these criteria. The criteria are stated thus: "Before a cluster can be interpreted as a single phoneme it must fulfill certain conditions. It must: 1. Belong to one of a certain number of types of clusters [footnoted: In those languages of the world which have already been at least partially described it has been shown that the clusters of phones which may combine to make one complex phoneme are limited to certain classes (e.g. stop + homorganic fricative, stop + aspiration, stop + nonsyllabic glide, etc.)]; 2. Be mono-syllabic (not containing a syllable division); 3. Be monomorphemic (not containing a morpheme division); 4. Act, in its distribution, like a single phoneme (i.e. be unique in its patterning in the language)." (p. 11). These statements seem to be interpretable as follows: 1. = clusters must be of certain kinds rather

[1] E.g.: alternant suffixes defined in terms of stems imply a class relationship among the stems. The stems may, however, be regarded as the alternants, with the suffixes becoming class members. See now Charles F. Hockett, Problems of Morphemic Analysis, Lg. 23. 321–43 (1947). Hockett's morph: morpheme relationship is my morphemic sequence: morpheme set-up (with difference relative principally to place of meaning data).

than others, because of certain traditional selections; 2. = syllables must be composed of phones, not phonemes; 3. = morphemes must be composed of phones, not phonemes (Stark's morphemes are the morphemic sequences (S) of the formula in **1.2.** above; these sequences are phoneme sequences); 4. = clusters must be operational units in phonemic analysis, which they become upon definition as such. Clusters must be represented phonemically in order to be identified as phonemes.

These interpretations are meant to suggest that the handling of phonetic sequence types phonemically involves selection criteria which may relate to ideals of: 1. symmetry; 2. tradition-following; 3. economy of elements in phonemic and morphemic statements. The strictures on Stark's criteria 2. and 3. do not imply that morpheme junctures cannot be used as relevant environments in the determination of phonemes. Instead it is proposed that phonemic analysis in the presence of already constituted morphemes must (by a definition of the morpheme as a phoneme sequence) be a sort of phonemic sub-analysis. The acknowledgment of a special cluster problem in phonemicizing may even be supposed to suggest the existence of procedural stages involving an hierarchy of primary and subordinate levels of phonemic statement, mainly dependent on the presence or absence of morphemes (± syllables) at the time of analysis.

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LINGUA: INTERNATIONAL REVIEW OF GENERAL LINGUISTICS. Haarlem, Holland, J. H. Gottmer, [1948]– . Vol. 1, no. 1– . Quarterly. Editors: A. W. deGroot, A. J. B. N. Reichling. $11.50 a year, plus postage.

This new journal, edited by two leading Dutch linguists, will contain, we are told, about 450 pages a year (6x9 in. is the page size); the articles will be in English or French, with other languages allowed at the discretion of the editors. The subscription price is exceptionally high, and one wonders how many of the world's linguists, even Americans, will be able to contribute personally to this scholarly Marshall plan.

This first issue contains the following material: Introduction (also in French, Avant-propos), 3–7; A. Reichling, "What is general linguistics?", 8–24; Henri Frei, "De la linguistique comme science de lois", 25–33; A. Martinet, "Où en est la phonologie?", 34–58; C. C. Uhlenbeck, "La langue basque et la linguistique generale", 59–76; Jerzy Kuryłowicz, "Le sens des mutations consonantiques", 77–85; J. Gonda, "The comparative method as applied to Indonesian languages", 86–101; reviews, 102–18; L'activité linguistique en Belgique, 1940–1945, 119–26; A. Martinet, "Le questionnaire d'IALA", 127–9; obituaries, 130–48; Notes and personalia, 149; addresses of linguists in Czechoslovakia and Poland, 150–1. Promised for future issues are articles by, among others, J. R. Firth, L. Homburger, T. A. Sebeok, Morris Swadesh, B. Trnka, C. F. Voegelin, A. Benveniste.

The resumption of scholarly activity in our field in Holland, as elsewhere in Europe, can only be welcomed. It is important to know which of our colleagues survived, what they did during the terrible years of war, what new work they are now undertaking. But in the linguistic material itself that is here presented, one can only feel somewhat disappointed.

In fact, there is actual linguistic material—and not very much at that—only in the articles by Uhlenbeck and Gonda. All the rest is discussion of theory. Now theory must of course be discussed, and the present reviewer has done his share of such discussion. But the American linguist wants to have some solid body of examples to back up the theory. He is not satisfied with general references to things taken for granted, and he is especially disturbed by the vast—and vague—generalizations indulged

in by our European colleagues, and by the continued linguistic ethnocentrism of most of them.

If I understand Reichling correctly, his general orientation is not too different from one that most of us would largely agree with. But he seems to me to be a bit too much concerned with "universal categories of speech" and with general laws of language at a time when there still remains such a tremendous amount of specific work to be done. Also, there appears to be a basic psychologism behind much of what he says that is troubling.

Frei is much too narrow in his statements about what linguistic "laws" can be. In every science, any "law" must be delimited as to its field of validity; a linguistic "law", appropriately delimited, is just as scientific if it applies only to one segment of one language as it is if it is a generalization of wide scope. Frei's examples are unfortunate too, being all of Trubetzkoyan rules for vowel patterns.

Martinet has some useful things to say about the need of applying phonemic principles, especially in the matter of considering phonemic systems as wholes, to diachronic linguistics. And he is refreshingly objective about some of the Trubetzkoyan errors.

In Uhlenbeck's article a certain amount of Basque material is alluded to. But we have no systematic picture of Basque structure (in fact, Uhlenbeck specifically denies any desire to give such a picture in the article), and are treated to a vague and psychologistic discussion of Basque as a "mixed" language with parallels between some of its categories and those of languages very remote from it in time and space. The number of completely unfounded assumptions in this article is so great that pages could be devoted just to questioning them.

Kuryłowicz deals with a few Indo-European phonemic rearrangements in a kind of mystic way: in his summary at the head of the article he says: "Les changements phoniques n'en [i.e., of the phonemic changes] sont que les symptômes extérieures." This, I suppose, is the old business of "actualization". Isn't it time that it was realized that the sounds we hear are the very basis of anything we say about a linguistic system?

Finally, in Gonda's article we have again the old chestnut about the impossibility of doing historical comparative linguistics on languages that are unwritten and that are spoken by native, "primitive" peoples. First Gonda says that the comparative method has been tested only on Indo-European languages. That is simply not so: Bloomfield, Sapir, Whorf, Hockett, McQuown, Halpern, Voegelin, and myself have worked out greater or smaller portions of the comparative historical linguistics of several American Indian language families at various times during the last 25 years. Dempwolff, mentioned by Gonda, did it for Indonesian, and now Dyen, with surer method and better control, is reworking the material. Emeneau has worked some on comparative Dravidian. Wherever the languages to be compared have been even fairly well described, and the comparative method has been rigorously applied, results have been good; and with the newer orientations suggested by descriptive structural linguistics, they will be even better. Of course, we must take into account such factors as parallel developments, morphological reworking, analogical changes, and all the rest mentioned by Gonda. But that simply means we shall have to do more work, and more carefully, than did the 19th century Indo-European comparativists who had large numbers of comparatively well-described languages with long recorded histories to work with. Languages are languages, whether spoken by "aristocratic" Indo-European overlords, or by "primitive" peoples politically subservient to them. Either there is possible a science of linguistics—descriptive and historical, or there isn't. And if it is possible—and I certainly say it is—then it is applicable to all lan-

guages, whether they have a complex morphology or a lot of reduplicated "baby"-words, or what not. Gonda's skepticism is a counsel of despair, where it is not sheer ethnocentric racism.

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LINGUA Y LITERATURA ARAUCANAS. By P. Sebastian Englert. Anales de la Facultad de Filosofía y Educación, Sección de Filología, Tomo I, Cuadernos 2 and 3. pp. 62–109. Prensas de la Universidad de Chile. 1936. LOS ELEMENTOS DERIVADOS DEL AYMARÁ Y QUICHUA EN EL IDIOMA ARAUCANO. pp. 5–27. ARAUCANO Y RAPANUI. pp. 28–34 Ibid. Cuaderno 1, 1934.

In the first mentioned paper Englert has the following divisions:

I. Language. 1. Historical Resumé of scientific investigation of Araucano. 2. The linguistic problem. What are the origin, relationships and historical development of the Araucano language? To arrive at a solution he suggests that one must investigate by using archeology, anthropology, ethnology and linguistic comparison with languages of Europe, South America and Oceania. In this section he mentions the outmoded classification of South American languages in three groups: Carib, Tupí-Guaraní and Andean. 3. Peculiarities of Araucano. These peculiarities are the ways in which Araucano differs from other languages, especially those of European origin. Under Phonetics only those "sounds" apparently unlike Spanish are described without reference to phonemes or allophones. Under Psychology he discusses the richness and dearth of words. Under Grammatical Structure and Morphology are cited some phenomena peculiar to Araucano with only a few morphemes isolated.

II. Literature. Englert laments the publication of translated narrative without text but gives parts from several narrative translations, and a discussion of a single autobiography; for native texts he gives only eleven short poems with translation.

In this paper the historical information is interesting though the linguistic data is worthless, containing practically nothing descriptive about the language.

In the second paper there is a useful list of one hundred and twenty-five etymological derivates from Quechua and Aymará, usually with references to both languages cited.

In the third paper a twenty word comparison is made with Rapanui from the Island of Pascua. Although some relationships of South American languages have been attempted with as little as a three word comparison, he wisely concludes that data is insufficient to prove Araucano-Rapanui relationship.

In regard to Rapanui, other than the word list, he gives only a short phonetic description of some of the symbols used and the archaic suggestion in reference to morphology that frequent reduplication of roots ("clearly not essential to the words", p. 29) seems to be influenced by the inquietude of the sea. Rapanui speakers have thus been affected as were the Arabs of the desert and the mountain people of the Alps and Andes to use strong guttural sounds and the Scandanavians and Ona of Tierra del Fuego, frigid country, to use a frequent strong *r*.

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DEVELOPMENTS IN AMERICAN INDIAN LINGUISTICS. By Zellig. S. Harris. The American Philological Society, Library Bulletin 89–97 (1947).

LANGUAGE LEARNING. A Quarterly Journal of Applied Linguistics 1.1–32 (1948).

KAMCHADAL AND ASIATIC ESKIMO MANUSCRIPT COLLECTIONS. A Recent Accession. By Avrahm Yarmolinsky. The New York Public Library, Bulletin 51.659–69 (1947).

POPULAR ACCOUNT OF THE KIOWA INDIAN LANGUAGE. By Parker McKenzie and John P. Harrington. Monographs of the School

of American Research No. 12. Santa Fe, N. M., 1948. Pp. 21.

LINGUISTIC AND ETHNOLOGICAL ASPECTS OF MAZATECO KINSHIP. By Florence Hansen Cowan. Southwestern Journal of Anthropology 3.247–56 (1947).

INDIANS OF SOUTHEASTERN COLOMBIA. By Paul H. Allen. The Geographical Review 37.567–82 (1947).

Harris begins by sketching the early, irregular course of American Indian linguistics, then shows why considerable development is now to be expected: partly because of methodological advances, partly because of popular application of certain techniques originating in this field. The general discussion is followed by the first addenda to the index to the Franz Boas collection of 1945 (reviewed in IJAL 12.181–3 [1946]); this list of manuscripts recently deposited in the collection makes reference to the following languages of this continent: Athabascan, Aztec, Chehalis, Cherokee, Chilula (Redwood Creek), Dakota (and Santee), Hopi, Hupa, Kato, Konomihu, Kwakiutl, Lillooet, Mandan, Mattole, Maya, Miwok (Sierra), Nass River, Nongatl, Okanagan, Pit River, Shasta, Sinkyone, Tewa, Thompson River, Tolowa, Tsimshian, Wailaki, Whilkut, Yakama, Zapotec. Much material has been prepared under APS stimulation concerning Cherokee (at the University of Pennsylvania) and Kutenai (at Indiana University), and this material will also be deposited. The Boas Correspondence has now been arranged in a preliminary way, which should be of great interest to all Americanists. Harris continues by surveying research in progress insofar as production of manuscripts for the Boas collection is concerned. In addition to extensive work on Cherokee and Kutenai, the following major projects are under way: preparation of an Oneida dictionary, analysis of Kwakiutl materials, a study of the Thompson River manuscripts, field work on Seneca, and structural restatements in such languages as Tübatulabal, Salish, Eskimo, Yawelmani, as well as several Algonquian and Athabascan languages. Many of these projects are notable also from the point of view of methodology.

The new journal, Language Learning, will interest linguists concerned with teaching Indo-European languages to Indians on the one hand, and Indian languages to whites on the other.[1] There are articles by Marckwardt, Fries, Lado, and an especially useful paper by Reed (with Lado and Shen Yao), stressing the importance of the learner's native patterns in attempting to master a foreign language; this first discussion of the subject gives the phonemic charts of English, Chinese, Spanish and Portuguese.

The New York Public Library has acquired two sets of collections: Jochelson's Kamchadal texts and Bogoras' Asiatic Eskimo materials, both described by Yarmolinsky. The former consists of some forty folk tales (three of which are here reproduced in translation), 129 pages of notes, including some linguistic observations, and fifty photographs. The second collection consists of studies of an ethnographic as well as linguistic nature, and texts from the Eskimos of Siberia. The grammatical outline runs to 98 handwritten pages, plus topical word lists. One short Eskimo tale (in English) is offered here. Both sets of papers have now been catalogued by Roman Jakobson;

[1] Clyde Kluckhohn and Dorothea Leighton, The Navaho (Cambridge, 1946), p. 208, point out the existence of a specific instance of this order: "The problems faced by The [Navaho] People in adjusting to white society . . . must be viewed within the framework of the differences between the English and the Navaho languages. Whites who have tried to learn Navaho have a lively realization of how difficult it is, but they often fail to comprehend that it is equally hard for Navahos to master English. English sounds are so different from Navaho and so indistinct by comparison that they are hard for The People to learn. . . . Other more specific problems for the Navaho learner of English arise from technical differences in the structure of the two languages."

he also compiled the bibliography relating to Kamchadal here published. This bibliography runs to almost fifty entries.

The precise function of technical terminology in the popular presentation of a scientific problem may be argued back and forth, but few authors would choose to substitute a brand new set of terms for the vocabulary of tradition, particularly in an account that lays claim to popular appeal. New terms imply new definitions. In the McKenzie and Harrington version of Kiowa we find many new terms and expressions; some of them are: morphomatics, lexics, belly of the syllable, literics, a petering, unmouthing, persono-etymon, personopostfix, and others. We also find new definitions; thus, "phonematics," we learn, "treats the mechanistics of uttered Kiowa language, what can be called the utterance plane. Considered from the phonematic angle, the Kiowa language consists of sound waves, physiologically and psychologically set up, and transmitted usually through the medium of air through the hearing and understanding of a co-species and co-linguistic member." As an illustration of lexics, the authors give a sample text; the same text was published in IJAL 12.237, two years ago.

The kinship terminology of Mazateco, a language of the Popoluca-Mazateco family, is examined by Cowan from the linguistic and ethnological points of view. Forty-one terms are listed, followed by a discussion of the morphological arrangements utilized; this is then related to other aspects of the culture. The genealogy of a merchant family is appended.

The Indians who live in the region of the Vaupés river in southeastern Colombia speak languages supposedly belonging to the Tucanoan stock. Those in widest use include Geral, Cubeo, and Tucano. Allen's paper deals with these briefly; he devotes most of the space to ethnographic observations.

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BIBLIOGRAPHY OF INDIAN FOLKLORE TEXTS IN LATIN AMERICA: 1947

Dedrick, John M. How Job'eso Ro'i got his name. Tlalocan, II, No. 2, Pp. 163–166 (Mexico, D. F., 1946). Yaqui text with both literal and free English translations, from Sonora, Mexico, of story explaining origin of nickname of informant's grandfather.

Díaz Flores, Raymundo. Textos en idioma cora; introd. por R. H. Barlow. 24 pp. (Escuela nac. de antropología, pub. 3.) (Mexico, D. F., 1945). Good introduction on historical background of Cora Indians from Jesús María, Nayarit, Mexico. Cora texts and interlinear literal Spanish translation of history of Jesús María, festivals (Holy Week and Pachitas), 3 short tales, and autobiography.

Guerra, Lucas. Traducción y comentario de una de las oraciones incaicas de Cristóbal de Molina. Revista de la sección arqueológica de la Universidad nacional del Cuzco, I, No. 3, Pp. 148–167 (Perú, 1946). On this 16th century Cuzco chronicler of the Incas and his work. Examines in detail previous Quechua texts and translations of this Prayer to the Creator, Wirakcocha, for protection and long life, and its philosophic-religious import.

Holmer, Nils M. and Wassén, Henry. Mu-igala, or the way of Muu, a medicine song from the Cuna Indians of Panama, with translation and comments by . . . , after an original record by the Cuna Indian, Guillermo Haya. 95 pp., 4 fig. (Göteborg, Sweden, Elander, 1947). Normalized Cuna text, English translation and notes, synopsis of contents with comparative notes, includ-

ing a wealth of beliefs related to birth (at which this song is sung) of Cunas of Panama.

Keller, Kathryn and Harris, Margaret. Masculine crab and mosquitoes; two Chontal texts. Tlalocan, II, No. 2, Pp. 138–140 (Mexico, D. F., 1946). From Tabasco, Mexico, with both literal and free English translations, of Crab and frog, and Frog and mosquitoes.

McAfee, Byron and Barlow, R. H. Un "cuaderno de marqueses". México antiguo, VI, Nos. 9–12, Pp. 392–404 (Mexico, D. F., 1947). Nahuatl text and Spanish summary of dialogue of a drama of the conquest of Mexico by the Spanish, in which figure Cortes, Malinche, Moctezuma, etc., no longer represented, obtained in San Cristóbal, Guerrero, Mexico, on the Balsas river.

Pike, Kenneth L. The flea; melody types and perturbations in a Mixtec song. Tlalocan, II, No. 2, Pp. 128–133 (Mexico, D. F., 1946). Mixtec text and English translation of song about an enormous flea shot and killed, whose meat is sold, viscera fed to 2,000 coyotes, yielded lard and soap, and its hide made 2,000 yoke straps.

Pike, K. L. A text involving inadequate Spanish of Mixteco Indians. IJAL 13.251–257 (1947). With free English translation of tale of Indians jailed unjustly for murder because they "confess" in Spanish phrases whose meanings they do not know.

Quijada Jara, Sergio. La tradicional fiesta de la Virgen de la Natividad o de Cocharcas. Sapallanga, Huancayo, Junín, Imp. Atlántida. 22 pp., 7 il. music (Peru, 1947). Describes 4 days' action of this Sept. 8 festival in Sapallanga, with 3 legends and 3 miracles of this Virgin. Quechua text of a novena song, with Spanish translation, also of Negritos or Carachaquis dance with music, and text and translation of Colla and Inca songs.

Stone, Doris. Two songs and a legend in Boruca. IJAL 13.249–250 (1947). Texts with literal and free English translations.

Wonderly, William L. Textos en Zoque sobre el concepto del nagual. Tlalocan, II, No. 2, Pp. 97–105 (Mexico, D. F., 1946). Zoque texts with Spanish translation from Copainalá, Chiapas, Mexico, describing witchcraft beliefs.

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